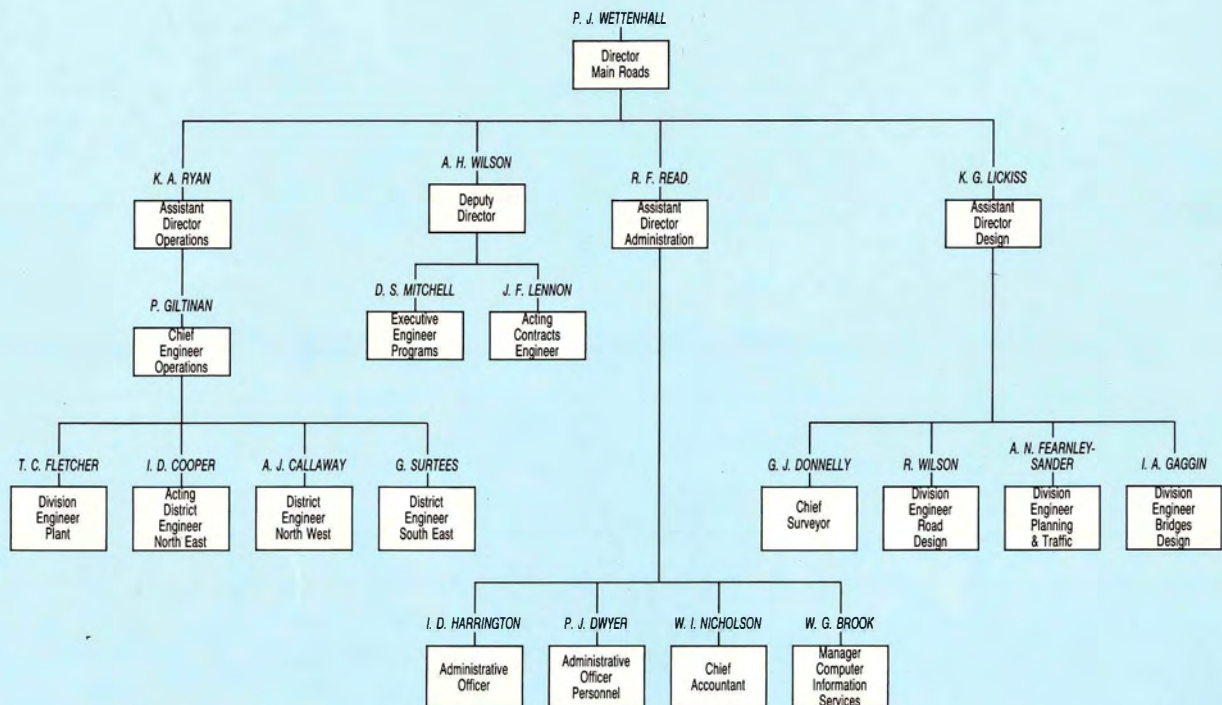


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1988-1989

Department of Main Roads
Annual Report
1988 - 89





PRINCIPAL OFFICERS



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Office of the Secretary for
ROADS and TRANSPORT

10 Murray Street, HOBART 7000

GPO Box: 936J Hobart 7001

Telephone: (002) 30 8011
Fax: (002) 23 2446

4 April 1990

Hon K. S. Wriedt MHA
Minister for Roads and Transport
HOBART

Dear Minister

I have pleasure in submitting the Annual Report of the Department of Main Roads for the year ending 30 June 1989.

The year was highlighted by the continuing success of the Department in the construction of major road and bridge projects throughout the state. Those projects included the first stage of the Deloraine Bypass on the Bass Highway, duplication of the Hobart Southern Outlet to 'The Lea' and the near completion of the Bellerive Bypass. The Department has achieved these outstanding results with a combination of increased productivity, positive approach and commitment to realise better results with reduced funding and human resources.

The Department as a whole has succeeded in improving its performance and I would like to take this opportunity to congratulate each and everyone for his and her efforts.

I would sincerely like to extend my congratulations to Peter Wettenhall who was the Director of Main Roads throughout the year under review. As a result of the restructuring that has occurred since 17 July, Peter has now become Deputy Secretary, Works with the revamped Department of Construction. All those employees of the old Department of Main Roads, who are now with Roads & Transport wish him well in this new position.

The new Department, combining Roads, Transport and Metro will ensure the year ahead 1989/90 will be both challenging and rewarding. Finally I would like to record my appreciation of the assistance given to me by my Deputies, Tony Wilson, Neil Aplin and Morrie Lowe.

Yours sincerely

K. W. Drew
Secretary, Department of Roads & Transport



*Incorporating
Divisions of*

ROADS
10 Murray Street
HOBART 7000

TRANSPORT
1 Collins Street
HOBART 7000

METRO
212 Main Road
MOONAH 7009

AUSTRALIAN ROAD RESEARCH BOARD



0000967



13th Annual Report

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OVERVIEW

During the financial year the Department continued to operate with the proven mix of methods, contracts for Federally funded National Road construction projects and direct labour for State funded construction and all maintenance works.

Tenders were invited for a further eight contracts and the Department continued to tender its successful direct labour methods, combining resources from the State and private sector, for these works. Six of the eight tenders submitted by the DMR were accepted, thus continuing an exceptional success rate achieved by the staff of the Department.

The requirement for inviting tenders for Federally funded National Road construction works commenced in 1981-82 and during the period to June 1989 tenders were invited for seventy-seven projects for which the lowest tender prices received totalled \$99 939 586. Twenty tenders were awarded to and carried out by private contractors; one awarded to a private contractor was completed by the DMR on default by the contractor. Nine were awarded to the DMR when no other tenders were received for the project and forty-eight were won by the DMR in direct competition with private contractors. Of all DMR tenders submitted, seventy-four per cent were successful.

An analysis of the tenders submitted by the DMR for all projects revealed that the average winning margin for the forty-eight winning tenders subject to competition was 15.96 per cent and the average losing margin for the twenty contracts awarded to private contractors was 8.52 per cent.

During this period Australian contractors have gained a reputation for the submission of large ambit claims on completed National Road contracts in Australia. Tasmania has not escaped this trend, the largest ambit claim submitted being \$2.4 million on a \$1.88 million contract.

The successful tendering for Federally funded contracts by the DMR has resulted in a further saving to the State by the payment into the State Highways Trust Fund of profits made on completed contracts. Profits have been achieved in all financial years since 1983-84, with a record of \$1.229 million being achieved on operations in 1988-89. The profit margin on DMR contract works to 30 June 1989 in total was 3.31 per cent.

In response to criticism by private contractors on the calculation of overheads for DMR tenders, two detailed investigations were undertaken into the overhead rates. These inquiries revealed that the methods adopted and the rates used accurately reflect the costs involved in DMR construction works.

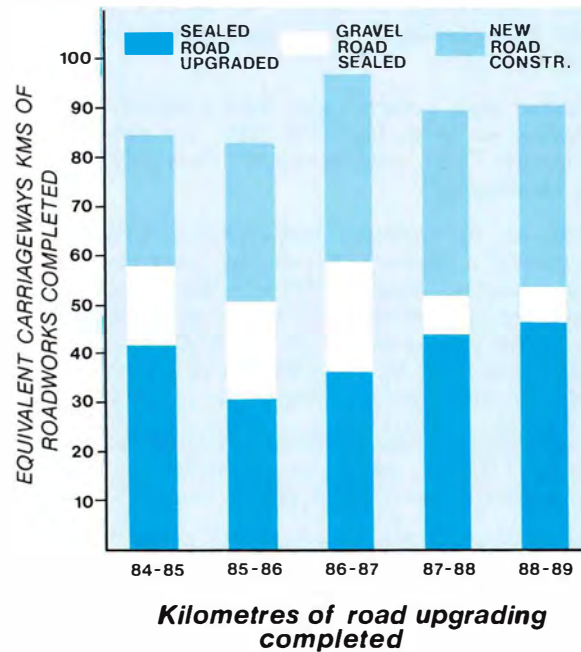
The overall cost advantage to the State on the tenders won by the DMR, shown by the analysis, is 20.24 per cent or \$14.476 million. This advantage, proven over a period of seven years, has been achieved using construction methods which are standard to DMR operations, either on contract or direct labour works, and is a measure of the effectiveness of all operations.

The introduction of contracts in 1981-82 created the need for a change in traditional DMR methods for both the production of construction plans and specifications and for project supervision. Direct labour works were and are constructed to plans providing geometric and special details. They are used with standard specifications by the construction engineer who is responsible for both engineering standards and the management of the works. These methods have proven to be successful in providing roads which generally exceed design life expectations by at least 25 per cent, thus indicating the degree of quality achieved in the works. For contract works, detailed construction plans and specifications are required for each project and engineering supervision is provided by the superintendent, while project management is the contractor's responsibility. This type of project control creates a significant additional work load and is conservatively estimated to increase the cost of the works by 5 per cent.

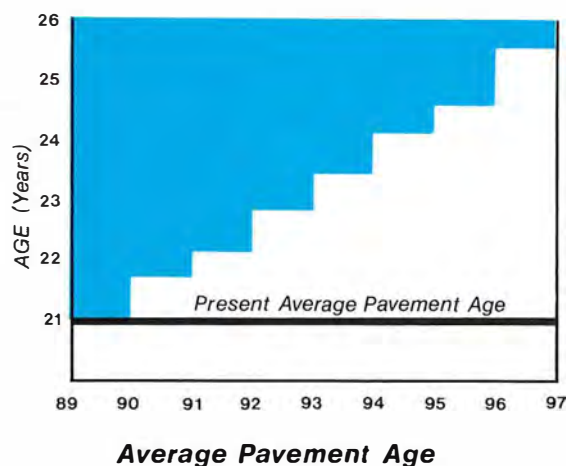
On 1 January 1989 the new Australian Centennial Road Development Act was introduced by the Federal Government. The Act replaces both the Australian Bicentennial Road Development Act and the Australian Land Transport (Financial Assistance) Act. It contains two new initiatives which are being addressed. They are the new National Arterial Road category and the introduction of Quality Management procedures to roadworks.

Three Tasmanian road projects have been included in the National Arterials. They are the duplication of the Brooker Highway north of Claremont, the continuation of upgrading works on the East Tamar Highway and the duplication of the Bass Highway west of West Park in Burnie. Funding allocations for National Arterials will be determined by the Federal Minister on an Australia wide basis. This method now applies to National Highway funding and only ongoing State Arterial and Local Road funding allocations for Tasmania are stated in the new Act.

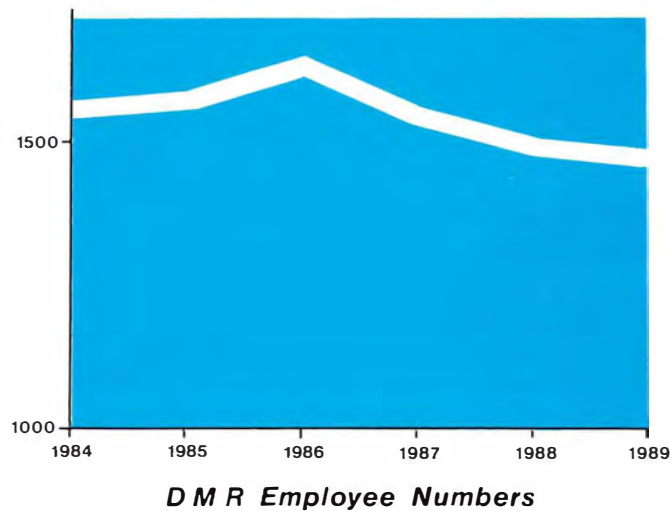
The introduction of Quality Management procedures to road construction is consistent with the Federal Government's aims for Australian industry. The impact of quality procedures on all aspects of DMR operations will be significant and the work involved in developing the methods of work is the transfer of the responsibility for engineering supervision of contract works from the superintendent to the contractor, thus bringing the supervision and management of contract works onto a similar basis to the traditional methods used on Tasmanian direct labour projects. Some savings in the additional costs related to contract supervision should result.



The ongoing major DMR task of maintaining an ageing road network with reducing funding levels has been met with success during 1988-89. The results of lower cost road upgrading methods adopted in 1986 are now being realised with 90 km of road construction, reconstruction, restoration and rehabilitation being completed in 1988-89.



The reduction in direct employment levels continued and the number of staff and award employees fell from 1 498 to 1 454 during 1988-89. The loss was achieved entirely by natural attrition.



The activities and achievements recorded in this 13th Annual Report of the Department of Main Roads are the results of the continued dedicated service and teamwork of the Department's staff and employees over a period of many years. On 17 July 1989 the Government, by administrative order, disbanded the Department of Main Roads. This Report is, therefore, the last Annual Report of the Department and I wish to record sincere thanks to all staff and employees for their excellent efforts and co-operation, not only during 1988-89 but for their total service to the DMR.

The DMR works have traditionally been carried out as a joint effort by private enterprise and the Department. Valuable assistance has been provided by consultants, material suppliers, contractors, other Government agencies and Councils who must all be included in these acknowledgements. The success, highlighted by the details of contracting activities in this overview, are proof of the quality of the outstanding service provided by all people involved in DMR activities during the Department's 13 years of operation.

P. J. WETTENHALL,
Director of Main Roads

HIGHLIGHTS OF THE YEAR

Completion and opening of major road projects, including the West Coast Link Roads, were features of the Department's activities.

Other significant events included the introduction of the Awards for Excellence, designed to provide recognition for individual achievement and high quality teamwork.

BASS HIGHWAY DUPLICATION, DON HILL TO ULVERSTONE

Construction of this \$21m project, comprising the duplication of the National Highway for 10 km, began in 1984. Included was the construction of the Forth River Bridge, a five span structure costing \$1.5m.

All roadworks contracts were won by the Department and were constructed with great efficiency and profitability.

The project was opened jointly on 15 March 1989 by the Minister for Main Roads, the Hon I. M. Braid, MHA and the Federal Minister for Land Transport and Shipping Support, the Hon R. Brown, MP.

QUE RIVER TO LEARYS CORNER LINK ROAD

This 27 km road links the Cradle Mountain Tourist Road with the Murchison Highway at Learys Corner. Construction began in November 1984 and was completed at a cost of \$17.5m. The road has shortened the travelling distance between Devonport and the West Coast by 41 km.



A joint opening ceremony was performed on 5 May 1989 by the Premier, the Hon R. T. Gray, MHA and the Minister for Main Roads, the Hon I. M. Braid, MHA.

GUILDFORD TO HAMPSHIRE LINK ROAD

Bypassing the tortuous Hellyer Gorge section of the Murchison Highway, this road offers an alternative route to the West Coast. The journey is 10.5 km shorter than the previous route via Somerset. Total expenditure to 30 June 1989 was \$15.3m.

The road was opened to traffic on 5 May 1989 by the Premier and the Minister for Transport.

SOUTHERN OUTLET HIGHWAY STAGE 2 DUPLICATION

This section, which continued the duplication of the highway for 1.9 km, extends from Proctors Road Underpass to Shaw Road Underpass. Completed for a total expenditure of \$3.909m, the project was officially opened on 19 December. The Minister for Main Roads, the Hon I. M. Braid, MHA, performed the ceremony.

TASMAN HIGHWAY—DAVEY STREET EXTENSION

The final stage of this \$10m modification of the urban arterial road network was finished with completion of the Davies Avenue interchange on the Queen's Domain.

The project was constructed in just over two years with minimal disruption to the 50 000 or so vehicles per day using the network. It was complicated by the need to retain historic buildings and to program works to allow investigation and recording of the historic Hunter Island causeway site.

The former Department of Main Roads entered the project in the Engineering Excellence Awards 1989 conducted by the Tasmanian Division of the Institution of Engineers, Australia. A video recording and booklet produced in the Department accompanied the entry. The project subsequently won a Highly Commended Award in the Public Works category.

AWARDS FOR EXCELLENCE

The Director of Main Roads, Mr Peter Wettenthal, introduced Awards for Excellence to provide both incentive and recognition for employees who excel in their work. Awards were made for individual excellence as well as team achievements.

As well as receiving an Award for Excellence, four employees at Moonah Depot won the Premier's Award in the 1988 Tasmanian Productivity Improvement Awards. Jim Dobson, David Marks, Bill O'Brien and Scott Brain developed a guidepost painting machine. Nicknamed the 'Dobson Dipper', the machine achieves great savings in time and cost.

Graeme Nichols, an Engineer of Bridge Design wrote an Award winning program for the design of prestressed concrete planks.

Paul Ingram, Executive Officer Administration, won an Award for organising two major publicity events, the Prospect Bypass official opening and the launch of the book 'Convicts & Carriageways'.



David Gregs, John Tomlin and Stefan Johns, a Road Design drafting group, received an Award for developing innovative plotting procedures using the MOSS design system.

An Award went to the North East asphalt gang, under the direction of Foreman Barry Collis and assisted by Workshop Foreman Graeme Knight and fitter Grant Coker-Williams. Their effort was the development and construction of an extendable asphalt drag. This equipment greatly increases the efficiency of asphalt laying.

Foreman Barry Shearing and his construction gang won an Award for the high standard and efficiency of their work on the Bellerive Bypass.

The District Engineer North West, Joe Callaway, and engineering staff received an Award for their management of contract construction works undertaken by the Department on the duplication of sections of the Bass Highway between Don Hill and Ulverstone.

Quality Policy

The Commonwealth Government introduced a requirement for all State Road Authorities to implement quality systems for the management of the National Highway and National Arterial Roads.

The Department responded by adopting quality systems for all of its activities for implementation by January 1990. All actions are being co-ordinated by a steering committee and two pilot projects have been chosen for the adoption of quality system principles.

A number of seminars were organised within the Department. Seminars, education and training will be part of an ongoing program.

Quality management principles will have a major effect on the Department's contractors and a seminar was held for interested contractors in June. Contact has been made with suppliers and with the Supply and Tender Department.

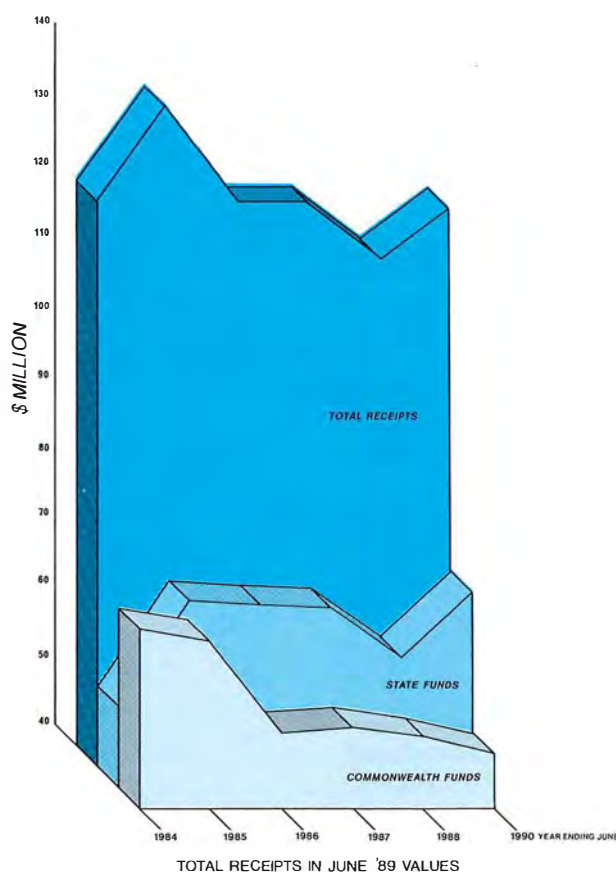
With the ongoing commitment of everyone a quality management approach will provide benefits and improvements to all aspects of the Department's operations.

FINANCE

COMMONWEALTH/STATE FINANCIAL RELATIONS

During 1988-89, Commonwealth Government road funding under the Australian Bicentennial Road Development Trust Fund Act 1982 and the Australian Land Transport (Financial Assistances) Act 1985, terminated.

Commonwealth grants for roads are currently paid to the States and Territories under the Australian Centennial Road Development Act 1988. This Act commenced on 1 January 1989 and will operate for five years. The overall level of funding is guaranteed in real terms until 1990-91. However, the level of funding to each State is not guaranteed. Grants to one State may be increased at the cost of reduced grants to another State.

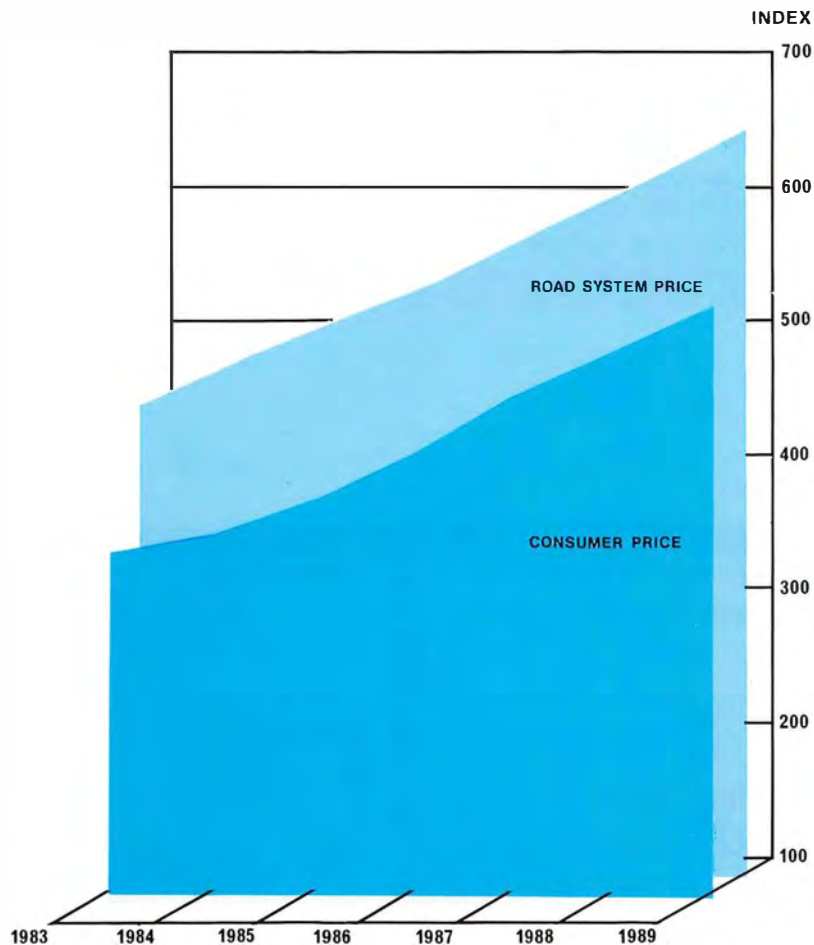


INFLATION

The Department monitors the rising cost of its operations by the use of a Road System Price Index. This is a composite index produced by combining indices for road construction, road maintenance and bridge works.

During 1988-89, the Road System Price Index rose by 6.3 per cent while the Consumer Price Index rose by 6.7 per cent.

A comparison between the Road System Price Index and the Consumer Price Index, adjusted to the same base year, is shown in the graph.



COMMONWEALTH GRANTS FOR ROADS

The Commonwealth provided financial assistance to the States for roads in the financial year 1988-89 under the Australian Land Transport (Financial Assistance) Act 1985, the Australian Bicentennial Road Development Trust Fund Act 1982, the Australian Centennial Roads Development Act 1988 and the Interstate Road Transport Act 1985.

The total grants to Tasmania were \$47 868 121 as compared with \$46 764 912 in 1987-88, an increase of 2.36 per cent.

Both the Australian Land Transport (Financial Assistance) Act 1985 and the Australian Bicentennial Road Development Trust Fund Act 1982 were terminated on 31 December 1988.

Moneys standing to the credit of both Funds were distributed in accordance with the agreed allocations.

Under the Australian Centennial Roads Development Act 1988 Tasmania anticipates receiving \$52 300 000 in 1989-90 made up as follows:—

	\$
National Roads—Construction and Maintenance	23 800 000
National Arterials—Construction	9 000 000
State Arterials—Construction	4 800 000
Local Roads—Construction and Maintenance	14 700 000
	<u>52 300 000</u>

Under the Interstate Road Transport Act 1985 Tasmania anticipates receiving approximately \$60 000 in 1989-90 which will be used for maintenance work on State Arterial Roads.

SPECIAL COMMONWEALTH FUNDS

Gordon River Power Development Compensation funds provided by the Commonwealth amounted to \$1 459 367 as compared with \$489 892 in 1987-88.

These funds were mainly utilised for roadworks on the Lyell Highway.

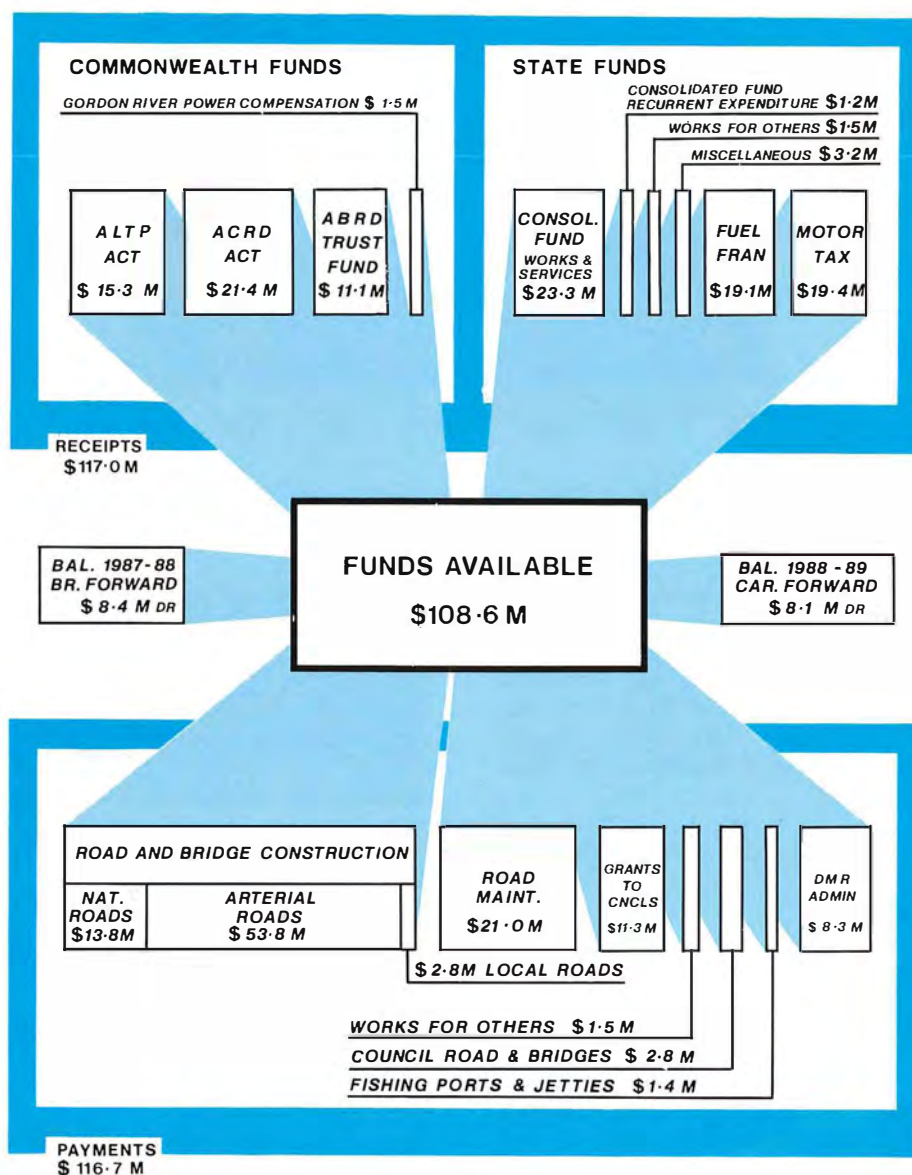
ROAD FUNDS FROM STATE RESOURCES

Motor Taxation—receipts amounted to \$19 436 425 as compared with \$19 112 788 in 1987-88, an increase of 1.69 per cent.

Public Vehicle Fees—fees collected during the year amounted to \$184 460 as compared with \$233 207 in 1987-88, a decrease of 20.90 per cent.

Petroleum Products Business Franchise Licence Fees—receipts amounted to \$19 101 828 as compared with \$18 640 123 in 1987-88, an increase of 2.48 per cent.

Consolidated Fund—Works and Services—funds provided to the Department for roads, bridges and associated works, upgrading of fishing ports, jetties and facilities for fishermen and the Launceston Flood Protection Scheme totalled \$23 320 000, an increase of 97.29 per cent when compared with the previous year.



RECEIPTS & PAYMENTS 1988-89

FUNDS PROVIDED BY OTHER DEPARTMENTS AND AUTHORITIES

Payments received by the Department for works and services carried out for other Departments and Authorities amounted to \$1 502 320 as compared with \$1 838 994 in 1987-88. The Department was involved with minor works for the Construction, Education, Forestry, Health, Housing, Lands, Parks and Wildlife and Transport Departments, Hydro-Electric Commission and Metropolitan Water Board.

STATE HIGHWAYS TRUST FUND

The State Highways Trust Fund Account is established under the Roads and Jetties Act 1935. The fund is credited with the following:—

- all grants made by the Commonwealth under the Australian Land Transport (Financial Assistance) Act 1985, the Australian Bicentennial Road Development Trust Fund 1982, the Australian Centennial Roads Development Act 1988 and the Interstate Road Transport Act 1985;
- all State motor taxation;
- public vehicle fees imposed under Section 20A of the Traffic Act 1925;
- contribution by Municipal Councils for the maintenance of classified roads;
- receipts from sale of stores (other than plant);
- any moneys provided by Parliament for the purposes of the fund;
- profits on contracts awarded to the Department; and
- such other moneys (if any) as the Treasurer may direct.

The fund is debited with the following:—

- expenses incurred in the construction, reconstruction and maintenance of State Highways and other classified roads;
- costs incurred in the maintenance of Council roads which the Minister has agreed to subsidise;
- contributions to the Bruny, Flinders and King Island Municipalities of portion of the Motor Tax collected in those Municipalities;
- all expenditure incurred under the provisions of the Australian Land Transport (Financial Assistance) Act 1985, the Australian Bicentennial Road Development Trust Fund Act 1982, the Australian Centennial Roads Development Act 1988 and the Interstate Road Transport Act 1985;
- costs of stores and materials (other than plant); and

- repair and renewal of bridges on Council roads.

A statement of receipts and payments for the State Highways Trust Fund Account for the financial year 1988-89 is shown at Annexure A, together with the corresponding figures for 1987-88.

During the 1988-89 financial year the sum of \$1 228 769 was transferred from the Department's Contract Ledger to the State Highways Trust Fund. This transfer was in keeping with a decision made by the Department to use the cash flow generated by its contract activities to assist in meeting the planned objectives of the Department.

The profit figure transferred represents the balance in the operational account for the various contracts at 30 June 1989. The figure cannot be used as an indication of the likely outcome of the contracts because credits for claims and variation orders and debits for actual costs of the works are being processed daily. The significant indicator is the total transferred which displays a positive cash flow in the account.

CONSOLIDATED FUND—WORKS AND SERVICES EXPENDITURE

The Consolidated Fund—Works and Services funds of \$23 320 000 allocated to the Department for roads, bridges and other works, were applied as follows:

1987-88		1988-89	
\$			\$
10 823 195	Roads and Bridges ..	21 822 493	
996 805	Other Works	1 497 507	
11 820 000	TOTAL	23 320 000	

A schedule of expenditure items and amounts is shown in Annexure C. It should be noted that the amounts for the road and bridge items listed in the schedule were in most cases supplemented by funds from the State Highways Trust Fund.

FINANCIAL ASSISTANCE TO LOCAL GOVERNMENT AUTHORITIES

Under the provisions of the Australian Land Transport (Financial Assistance) Act 1985, the Australian Bicentennial Road Development Trust Fund Act 1982, the Australian Centennial Roads Development Act 1988 and the Roads and Jetties Act 1935, the Department made direct grants to local government authorities based on a formula approach for construction and/or maintenance of local roads and approved projects for arterial roads controlled by Councils. The direct grants to Councils totalled \$11 328 128, an increase of 16.93 per cent to the amount of the direct grants provided in 1987-88.

In addition to the direct grants, the Department also provided indirect financial assistance to local government authorities. Under the provisions of the Local Government (Highways) Act 1982 the Department financed and carried out the repair and renewal of bridges on Council roads. The Department maintained two Council Roads which have been declared as subsidised roads and provided funds to the Department of Lands, Parks and Wildlife and the Hydro-Electric Commission

for work on some local roads. The indirect financial assistance to Councils totalled \$2 797 331, a decrease of 15.99 per cent on the preceding year's total.

The total of direct grants and indirect financial assistance to Councils was \$14 125 459 an increase of 8.51 per cent to 1987-88. The amounts of direct grants and indirect financial assistance to Councils for the various categories of roads and works are shown in Annexure D.

MAJOR PROJECTS

MAJOR ROAD WORKS COMPLETED

<i>Road</i>	<i>Section</i>	<i>Cost \$m</i>
NATIONAL HIGHWAY		
North West District		
Bass Highway	Duplication Ulverstone to Penguin Stage 1	2.897
NATIONAL ARTERIAL ROADS		
North East District		
East Tamar Highway	North from Northern Rail Overpass	0.611
South East District		
Brooker Highway	Berriedale Road to Jimbirn Street	0.560
URBAN ARTERIAL ROADS		
North East District		
Launceston Southern		
Outlet	Glen Dhu Corridor	11.392
South East District		
Tasman Highway	Davey Street Extension	2.192
RURAL ARTERIAL ROADS		
North East District		
Tasman Highway	Ringarooma Main Road to Branxholm—Legerwood Rivulet Bridge	1.504
	Legana to Muddy Creek	1.788
	Bradys Lookout Climbing Lane	0.776
	Underwood Deviation to Lilydale	1.717
West Tamar Highway		
Lilydale Main Road		
South East District		
Arthur Highway	Eaglehawk Neck to Masons Point	3.394
	Masons Point to Taranna	2.503
Lyell Highway	Fenton Main Road to Gretna	0.989
WEST COAST LINK ROADS		
Guildford to Hampshire Link Road		15.321
Que River to Learys Corner Link Road ..		12.964
LOCAL ROADS		
North West District		
Cradle Mountain Tourist Road	Cethana Turnoff to Learys Corner	4.582

MAJOR BRIDGEWORKS COMPLETED

<i>Bridge</i>	<i>Road and Section</i>	<i>Cost \$m</i>
NATIONAL ROADS		
North East District—		
Bishopsbourne Road Underpass	Bass Highway, Illawarra Main Road to Hagley	0.867
RURAL ARTERIAL ROADS		
North East District		
Legerwood Rivulet Bridge	Ringarooma Main Road to Branxholm	0.341
North West District		
Heazlewood River Bridge	Waratah Main Road	0.401
South East District		
Tyenna River Bridge	Fenton Main Road	0.341
UNCLASSIFIED LOCAL ROADS		
South East District		
Lune River Bridge	Lune River Subsided Road	0.989

DIVISION REPORTS

ROAD CONSTRUCTION AND MAINTENANCE

Road Maintenance

Expenditure figures for the financial year 1988-89 for each District are summarised as follows:

	South East	North East	North West	Total
	\$m	\$m	\$m	\$m
Routine Maintenance ...	4.507	3.518	3.369	11.394
Reseals and Overlays	0.910	0.952	0.862	2.724
Total	5.417	4.470	4.231	14.118

Routine maintenance continued at a satisfactory level throughout the State. However the effects of zero funding for the reseals and overlays program on National Highways this year were reflected in an increase in areas of pavement deterioration requiring priority attention.

Landscaping and Verge Maintenance

Verge maintenance and landscaping have become important issues. This has arisen from public expectation for landscape development and maintenance in urban areas and the large areas of verge created by new construction works. Their ongoing maintenance demands ever increasing funding.

An attempt was made to identify the costs involved so that adequate budgetary provision can be made in the future.

Environmental concerns associated with the selection and use of herbicides and weedicides within classified road reservations increased in importance, because of the effect on adjacent rural developments such as vineyards. This matter is receiving constant attention.

The Department is represented on a committee of the Greening Australia Project, which addresses issues of the management of roadside vegetation and the identification and protection of native plants and grasses.

Rehabilitation/Restoration Works

The rehabilitation program continued to assist in the upgrading of high cost maintenance sections of road. The following projects were undertaken this year.

South East District

Brooker Highway—Between Risdon Road and Derwent Park Road (continuing)

Lake Highway—Steppes to Poatina Turnoff (continuing)

Lyell Highway—Norton Mandeville to Ouse (continuing)

Tasman Highway—Buckland to Orford (continuing)

Fenton Main Road—Westerway to National Park (continuing)

North East District

West Tamar Highway—Exeter to Batman Highway Turnoff (continuing)

Tasman Highway—Brid River to Sideling

Tasman Highway—Coles Bay Tourist Road to Swansea (continuing)

Bridport Main Road—Bridport to Bell Bay
Bridport to

Scottsdale

Frankford Main Road (continuing)

Blessington Main Road

North West District

Lyell Highway—Victoria Valley Road for 6 km south

Lyell Highway—Nelson River to Donaghys Hill (continuing)

Marlborough Highway

Zeehan Highway

Waratah Main Road

Bass Highway—Cassidys Bog to Rocky Cape (continuing)

New Plant

The new mobile asphalt plant was commissioned during the 1988-89 sealing season and produced asphalt for overlay and rehabilitation works in the North East District. The new 25 000 litre electrically fired bulk bitumen mobile storage tanker was allocated to the North West District for its sealing works which included the Guildford to Hampshire and Cradle Mountain Link Roads.

A state of the art line marking machine, manufactured by the Roads Corporation, Victoria was purchased for the South East District. Its performance is being assessed for possible use on a State-wide basis.

Maintenance Review

Considerable effort was put into a comprehensive review of road maintenance operations throughout the State.

Pavement Management Systems (PMS)

The position of Pavements Engineer was created in August and the road needs sub-section was transferred to Operations Branch. The resources of road needs, including the road data base, are being utilised for pavement management.

Progress has included the conversion of the road data base to accommodate several PMS requirements and also staff training to undertake field data assessment.

An interim PMS report for the National Highway has been accepted by the Commonwealth Department of Transport and Communication.

Further work also has been undertaken to develop a Surface Life Index (SLI) which is now in use to assist with the 'Reseals and Overlays' program'.

The use of an 'Expert Panel' system is currently under investigation to enable the establishment of a predictive model for pavement life. This model is the basis for network planning which will enhance forward strategic planning proposals.

PLANNING AND TRAFFIC

The Division comprises three sections

- | | | |
|--------------------|---|-------------------|
| • Road Planning | } | Specialist advice |
| • Traffic Services | | |
| • Development | | |

Each of these sections makes significant contributions in the definition of proposed new road proposals.

The Road Planning Section provides engineering skills in locating a new road proposal in an optimal position. Specialist advice from the other two sections with regard to traffic volume predictions and land use matters is generally required as a necessary part of defining the new road.

In addition, the specialist sections give expert advice to other areas of the Department and the Government.

Road Planning

As part of the planning process, when a route has been defined as a future road alignment, it generally needs to be protected so that its value is not jeopardised before it can be constructed. The principal means of protection is a proclamation under Section 9A of the Roads and Jetties Act 1935 whereby it is proclaimed as an intended new line of Highway. The landowners' use of the land is restricted in some ways (similar to the use of an easement) in return for which restriction the Department is liable to compensate the landowner.

Of the 28 projects planned in the section in June 1989, it is proposed that Section 9A proclamations be applied to 16 of them.

Other activities included:

- Supervision of specialist consultants employed in botanical and archaeological studies.
- Membership of the Tasmanian Technical Committee on Soil Conservation and the Supervising Panel for Greening Australia (Tas.) project, Roadside Vegetation Management.
- Prediction of noise levels for various projects and the assessment of existing noise attenuation measures.
- Documentation of the environmental impact of projects for assessment by the Department of Environment.
- Preparation of a draft Environmental Assessment Manual and Quality Assurance environmental guidelines.

Traffic Services

Traffic investigations were undertaken into allegedly hazardous locations on State roads, and remedial treatment recommended. This work forms part of the Department's continuing efforts to make the existing road network safer for the travelling public. A summary of fatal accidents occurring on State Classified Roads is presented as follows:

FATAL ACCIDENTS ON STATE ROADS (1-7-88 to 30-6-89)

	National Highway	Other Highways	Main Roads	Other Classified Roads	Total Classified Roads
Number of Single-Vehicle Accidents:					
Fatal	3	12	12	3	30
Injury	54	146	76	15	291
Property Damage	116	282	104	30	532
Total Number of Accidents:					
Fatal	11	18	20	3	52
Injury	134	309	132	31	606
Property Damage	301	680	233	58	1272
Vehicle Kilometres of Travel (millions) .	1.6	3.0	1.2	0.3	6.1

Over 200 short-term classification counts were taken throughout State Roads, following the introduction of 'Archer' automatic vehicle classifiers.

The latest counts, made at 846 sites since 1986, were seasonally adjusted and published as a Dbase III report entitled 'Traffic Volumes'.

Information about the hourly, monthly and yearly variation of traffic since 1982, collected at the State's 57 permanent counting sites, was published in the first edition of 'Traffic Patterns'.

Culway weigh-in-motion machines were installed at three new locations and four repeated locations.

Culway data collected by December was published in the first edition of 'Traffic Weights'. Piezo cables were installed at one Culway site, replacing tape switches laid across the road surface.

Culway data is planned to be incorporated into the Integrated Traffic Survey system. This will enable statewide trends in truck loadings and overloadings to be monitored.

Development Section

Recent Government policy transferred responsibility for planning and development decisions to local councils. Where possible these decisions included those associated with development access to the State Road system.

To accommodate the policy the Department provided guidelines and requirements to be included in statutory planning schemes and interim orders administered by municipal councils.

Other Section activities included consideration of development and subdivision issues within State Road corridors, and advice on planning scheme matters affecting the major highways.

The table below shows a comparison between the years ending 30 June 1988 and 30 June 1989.

	1987-88	1988-89
Subdivision matters	254	279
Development matters	115	137
Statutory planning issues	138	62
Miscellaneous	37	59

ROAD DESIGN

The Road Design Division is responsible for the design of all roadworks, whether constructed by contract or direct control, consistent with Government and Departmental objectives.

For contract projects the Division is also responsible for the road specification of the contract documents.

Close liaison is maintained with other Divisions of the Department and in particular the three Districts.

This ensures that plans are available in time to meet the District's construction program and also that designers are kept abreast of the latest construction practices.

As required the Design Division liaises with other Government and Local Government bodies and the general public who are affected by Departmental works.

Computer Aided Design

Several initiatives were undertaken with regard to the operation of the MOSS system. Included was a review of the MOSS Training Procedure and the circulation of an information sheet 'MOSSLINE' concerning day to day use of the system.

An assessment was made of a suitable C.A.D. system for the roads drawing office. Two drafting officers were involved in a three month evaluation of AUTOCAD and DOGS.

The Director's Advisory Committee approved the acquisition of two licences for the DOGS system for the roads drawing office.

Road Direction Signing

The upgrading and maintenance of the alpha numeric direction signing at isolated locations throughout the State was undertaken.

A complete photographic survey of all alpha numeric fingerboard sign installations began in the North East District and continued in the North West and South East Districts. All photographs and site data obtained in the field were checked and collated by the Traffic Design Section. It is proposed to issue to each District a complete photographic inventory of fingerboards in that District. Each inventory will be revised as necessary.

A four year program began for the manufacture and erection of new advance direction signs on all major routes used by tourists. It is estimated that some 400 junctions will require approximately 800 new signs at an estimated total cost of \$400 000.

The Overtaking Lane "X" km advisory sign erection program continued in both the North East and South East districts.

Special signs designed to help prevent accidents in rural areas, 'Rest if Drowsy' and 'Drowsy Drivers Die', were erected in advance of two of the major rest areas (St. Peters Pass and Paramatta Creek) on the National Highway.

Bypassed town signs were erected for Kempton and Oatlands.

Signs and Line marking

Signs and linemarking plans were designed and produced for all major contract and direct control projects. The Traffic Design Section supervised their placement and checked sign and linemarking plans produced in the drawing office.

Tourism Signing

Continued participation in the Tourist Signs Advisory Council resulted in the manufacture and erection of additional tourism signs.

Autocad

The system was developed to the stage where all signing designs were produced by this means. CAD was also used extensively in the preparation of charts, forms and diagrams for Departmental needs.

Street Lighting

The computer design programs MICRO-SITE-LITE, SAA STAN and SAA CARL were installed on the personal computer in the Traffic Design Section and used in conjunction with the Hydro-Electric Commission in the preliminary design of several street lighting proposals. The Department's practice of fostering side road lighting at isolated junctions continued. Several installations were made and other proposals were being investigated.

BRIDGE DESIGN

The total deck area of bridges designed during the year by Bridge Design Section was approximately 4 000 m².

Principal designs completed included Euston Street Underpass Stage 2 on Brooker Highway, Shoreline Footbridge over the Bellerive Bypass, Tyenna River Bridge (B 1571) on the Fenton Main Road, Plenty River Bridge on the Glenora Road, Lindsay River Bridge on the Smithton-Zeehan Link Road, and Ouse River Footbridge on the Lyell Highway. As well as bridges, culverts and subways, designs were provided for retaining walls and a traffic signal gantry.

Liaison was provided with Associated Engineering Consultants on both earthworks and structures for the Bass Highway, Illawarra Main Road to Hagley.

Investigations and/or preliminary designs were undertaken for a variety of bridge projects, including a number of structures on the Bass Highway. In addition, investigations were made for remedial works for batter slope stability problems at Hawks Hill Deviation, Arthur Highway, and for the feasibility and cost of using a ferry instead of a bridge at the Pieman River Crossing, Corinna. Technical advice was also provided to construction staff on problems arising during construction on a number of bridges.

Details of principal designs and investigations are included under Road and Bridge Projects later in this report.

Additional software for Computer Aided Bridge Design was obtained and towards the end of the year Bridge Design Section took delivery of a second work station. An active involvement with the AUSTROADS (NAASRA) Working Group was maintained. Staff were trained in the use of QIKDRAW graphics program and QUICKBASIC program language.

An assessment was made during the year on the most suitable Computer Aided Drafting system for the Bridge Drawing Office. A three month trial was carried out using AUTOCAD to produce the majority of drawings for Plenty River Bridge. Subsequently it was recommended that a licence and work station be obtained for the DOGS system in the coming year, the same system being adopted by Roads Drawing Office.

Hydraulic Design

Road Drainage and Flood Protection

Road projects in the planning phase were inspected and investigated for preliminary hydraulic assessment. The major projects were Tasman Highway at Paradise Gorge, Midland Highway—Bagdad Bypass, Wesley Vale Project—Latrobe Rail Spur, Launceston East Tamar Outlet Road Extension and Old Surrey Road or Reeve Street Connector.

Hydraulic design for road projects in the detailed design phase was completed or initiated for a range of projects. The major work was centred on 12 km of the Smithton to Zeehan Corridor, Brooker Highway, Abbotsfield Road to Granton, Deloraine Bypass following final determination of the alignment at the eastern end, Bass Highway, West Park to Cooe, Poatina Main Road and Brumbys Creek to Midland Highway. In addition projects proposed for restoration and rehabilitation were reported on, including sections of the Tasman Highway, Lake Highway, Blessington Main Road, West Tamar Highway and the entire length of Marlborough Highway.

Hydraulic investigations for bridge renewal or replacement were carried out at 60 sites, 44 of which were minor timber bridges principally on Council roads. In this latter class recommendation for replacement in permanent materials using pipes or box culverts were made. More major bridge investigations included the Pieman River and Lindsay River Bridges, Smithton to Zeehan Road, Ouse River and Serpentine River Bridges, Marlborough Highway, and Cam River and Cooe Creek Bridges, Bass Highway.

Investigations continued into drainage problems and complaints relating to the classified road network generally. Eleven of these were generated from ministerial enquiry and ten related to subdivisional development adjacent to road reservations.

Launceston Flood Protection Scheme

Engineering liaison and overview of expenditure of State Funds on design and construction works undertaken by the City of Launceston continued. These works derive from the State Government's responsibility under the 1975 Agreement to make good serious structural failure and to raise the earth levees to their design height.

Continuing settlement of the levees and associated drainage outfalls and bridge and flood gate wing walls necessitated expenditure as follows:

	\$'000
Carry over expenditure 1987-88	36
Mowbray Levee Reconstruction	102
Kings Wharf Levee Reshaping	52
Charles Street Bridge Wing Wall	
Investigation	9
Purchase of Australian National Railways Land	7
Carried forward to 1989-90 less	6
	200

Funding was re-imbursed by a 40 per cent contribution from the Commonwealth Government under the Federal Water Resources Assistance Program.

Jetties, Slipways and Fishing Facilities

Expenditure of \$99 000 was incurred in maintenance of State Jetties and Slipways as follows:

	\$
Minor Miscellaneous and Emergency Repairs	18 993
General Maintenance of State Slipways	8 689
St Helens Point Navigation Light	428
Port Davey Navigation Light	1 980
Bruny Island Ferry Berths	6 960
Opossum Bay Jetty	7 997
Strahan Fishermens Jetty	15 324
Carry over funding for works in 1987-88	4 288
Montagu Point Jetty (Demolition)	2 608
Dunalley Slipway	13 762
Triabunna Slipway	4 260
Bicheno Slipway	8 450
Strahan Slipway	5 145
	98 84

Strahan 100 Tonne Slipway

A new slipway of 100 tonne capacity was constructed and commissioned adjacent to the existing 80 tonne slipway at Strahan. The additional high capacity slipway will alleviate congestion and delays previously experienced. Difficulties were encountered in offshore piling because of subsurface conditions. This involved considerable extra work, prolonged the project and increased costs.

Construction of two of the four cradles was postponed to limit demand on funds, reducing the initially installed capacity to 80 tonnes. Expenditure in 1988-89 was \$468 000, of which \$67 000 was from Gordon Below Franklin, Alternative Works Program funding; the remainder was funded from Consolidated Fund Works and Services. Total completed project cost was \$880 000.



Bridport Harbour

Progress on the Port Improvement Study being undertaken for the Government by specialist coastal engineering consultants, Water Research Laboratory of the University of New South Wales, was slowed by minimal advancement of the trial dredging program. The dredging contractor was granted temporary suspension to complete other works on the Tamar River before returning to site to partially dredge the vital barway area. The Department increased the height of a 100m length of the western rock training wall to ensure that flood and ebb flows were maintained in the channel even at high water.

Expenditures recorded were as follows:

	1988-89	Previous	Total
Harbour Study .	19	28	47
Training Wall Raising	47	158	205
Pilot Dredging ..	38	35	73
	104	221	325

Having reached the end of its useful life, the left-hand Brid River Jetty was demolished at a cost of \$1 900. Work began on concrete overlay to the timber deck on the right hand Brid River Jetty with expenditure of \$12 000. This overlay will improve the quality of the surface and extend the life of the jetty deck.

Cape Barren Island Jetty

Renewal in timber of the complete 32m length of deck on this jetty was completed at a cost of \$73 600 and total cost of \$107 000. The design permitted upgrading of the jetty to 15 tonne truck loading.

Darlington Jetty, Maria Island

Severe storm activity in July damaged the new 24m jetty extension by bolt failure in the timber bent joints and the fendered length of the original jetty stem by settlement of piling. Reconstruction of the jetty stem and repair of the extension was carried out using new piling driven to firm bearing. The repairs and strengthening were carried out at a cost of \$300 000.



Port Davey Navigation Light

The previous gas fired light was replaced by a solar light. The solar light installation was fully prefabricated and tested by Moonah Depot and installed rapidly and efficiently using helicopter access. The new light will reduce servicing effort. Costs this financial year were \$12 000 bringing the total installed cost to \$18 200.

Fishing Ports Upgrading

The 1987 Tasmanian Fishing Ports Study was released and comment received by the Interdepartmental Committee responsible. The Report was submitted to Cabinet for consideration. In the absence of this approval no works emanating from the Report were undertaken, but port upgrading works outstanding from the previous 1982 Study were continued.

Currie Harbour Works

The planned breakwater and jetty construction at Currie was delayed because of difficulties in locating a suitable source of quarry rock at reasonable cost for the breakwater. These difficulties, associated with rising property costs for the preferred quarry, led to estimated project costs increasing significantly. This resulted in review of the project and further delay in construction. Jetty siteworks were not initiated as it was considered to be inadvisable for jetty works to proceed without the breakwater. Off-site works were undertaken leading to delivery to site of

most precast concrete deck beams. Expenditure in 1988-89 was \$136 000 on jetty construction and \$23 500 on quarry investigations including conduct of trial blasting.

Triabunna

Planned rehabilitation of dredged spoil areas, created by previous dredging works in Spring Bay, was undertaken at a cost of \$55 000.

St Helens—Georges Bay Training Wall

Six monthly monitoring of the barway and navigation channel adjacent to the rock training wall was undertaken. The monitoring confirmed a general increase of water depths over the barway and reduction in barway width. Some seasonal variation continued to occur corresponding to specific storm events. A meeting with local interested groups was held and confirmed a high level of satisfaction with the work to date and the system response. No further extension was indicated. Minor quarrying and strengthening works were undertaken at a cost of \$37 500.

Stanley Fishermens Dock

Site drilling for Stage II of the dock upgrading was conducted at a cost of \$10 500. This work, centred on the 22.5m unloading wharf, confirmed the feasibility of retaining the existing line of the face of the wharf.

Grassy Wharf

Specialist consultants in concrete deterioration, Taywood Engineering Ltd, were appointed to investigate the deterioration of Grassy Wharf. This facility, owned by the State and leased to King Island Marine Board, was known to be in an advanced state of concrete deterioration from reinforcement corrosion. The report was received and recommended a rehabilitation strategy. Expenditure on the consultancy was \$30 000.

Bridge Maintenance

Tasman Bridge

As a navigation aid an aluminium catamaran raft has been moored 1km upstream from the bridge since September 1987. The raft contains sensitive, solar-powered, electronic and telemetering equipment which measures current speed and direction, wind speed and direction and water temperature. It transmits this information to Marine Board pilots and the Board's Port Control Tower. In April and June the raft and its equipment were removed and inspected by representatives of the Board, the DMR, Bureau of Meteorology and Steedmans Ltd who had supplied and installed the equipment. The system was found to be in good condition and performing satisfactorily.

Regular survey monitoring of the position of the Lake Illawarra indicated minimal movement of the vessel.

The drainage system of the eastern viaduct was cleared using high pressure water jetting.

Routine maintenance included sweeping the deck, clearing scuppers, lighting, lamp standards and checks on expansion joints.

Bridgewater Bridge

Strengthening work to enable relaxation of the 38 tonne load limit is being undertaken by Moonah Workshops in conjunction with South East District's work force and supervisory control.

Lift span openings totalled 164. They were required for maintenance and/or testing purposes on 30 occasions and to allow for the passage of 187 vessels, comprising 16 ferry/cruise boats and 171 private pleasure craft. This was a 60 per cent increase in lift span openings compared with the previous year's total of 102 openings.

In December an auxiliary diesel-operated standby power plant with variable speed fluid coupling was installed in the lift span control room by Moonah Workshops, using a one tonne steel lifting frame installed temporarily in the control room.

Arrangements were made to install an infra-red security system at the maintenance compound to reduce the incidence of vandalism and burglaries. The work was expected to be completed in August 1989.

Routine mechanical, structural, hydraulic and electrical maintenance was undertaken.

Bruny Island Ferry Terminals

Two 500mm size rubber fenders were purchased to replace damaged fenders at Roberts Point Terminal. Emergency and routine hydraulic and electrical maintenance was undertaken.

Denison Canal Swing Bridge

The steel open-grid roadways and footway sections of the swing span deck were repainted with anti-skid coating.

Vessels passing through the canal in 1988-89 totalled 1 435, an increase of 89 vessels (7 per cent) in canal usage compared with the previous year.

Routine hydraulic and electrical maintenance was undertaken regularly.

Bowen Bridge

In an endeavour to overcome almost continuous vandalism problems with the pedestrian proof fencing at the western abutment and at Pier nine, alternative accesses to the Water Board's maintenance trolley were provided through the footway expansion joints at each abutment. Routine maintenance included sweeping decks and cleaning scuppers.

Batman Bridge

Work continued on repainting the deck trusses. Routine maintenance included regular sweeping of the deck and cleaning of scuppers.

General

Maintenance and repairs to the State's concrete, steel and timber bridges on classified and unclassified (Council) roads were undertaken, including renewal of components and repainting where required. Major maintenance was carried out in the South East District on:

Iron Creek Bridge on Nugent Main Road—pile renewal

Park Creek Bridge on Glenora Road—concrete overlay placed

Prosser River Bridge on Buckland Road—renewal of decking and girders.

In the North East District, work was undertaken on:

Aberfoyle Creek Bridge on Rossarden Secondary Road—renewal of decking and fences

Ringarooma River Bridge on Garibaldi Road—renewal of eight spans after flood damage.

Major maintenance in the North West District included:

Ironcliffe Road Overpass on Bass Highway, Penguin—girder repainting

Cam River Bridge on Bass Highway, Somerset—fence repairs and repainting

Inglis River Bridge on Takone Road—renewal of beams, fences and decking

Black River Bridge, Mawbanna—renewal of beams, fences and decking

Conglomerate Creek Bridge in Wilsdon Street, Queenstown—renewal of decking.

Work on the bridge inventory, identification of bridges and allocation of numbers continued.

PLANT

General

The Plant Division, which incorporates workshops at Moonah, Launceston and Ulverstone, provides plant and workshop facilities for the Department's construction and maintenance activities on roads and bridges.

Income from DMR plant hire amounted to \$12.515m. In addition \$15.185m was paid to private contractors for the hire of plant on DMR projects during the year.

Plant Purchases

An amount of \$2.572m was spent on equipment purchases and replacements, including one fork lift truck, one linemarking machine, two all terrain cranes, one mobile crane, three small self propelling vibrators, two prime mover trucks, one 22 tonne flat tray truck, one 50 tonne 24 wheel triaxle low bed semi trailer, one 22 tonne 16 wheel twin axle dolly and six steel shipping containers for use as equipment huts.

Training and Driver Testing

During the year 79 people, including 31 from other Departments, were tested and issued with DMR driving permits.

One-day defensive driving seminars were held at Moonah, Launceston and Ulverstone with a total attendance of sixty seven.

Vehicle Accidents

The frequency of vehicle accidents decreased from 0.98 to 0.70 accidents per 100 000 km. Personal injury was negligible. Fourteen accidents resulted in damage in excess of \$1 000.

Apprentices

First year metal trades apprentices from Moonah Depot again participated in the Hydro-Electric Commission's training scheme. Associated Pulp and Paper Mills training scheme was available for Ulverstone apprentices.

The number of apprentices training in the Department's workshops was 53, made up as follows:—

Moonah—24
Launceston—16
Ulverstone—13

Depots and Workshops

The workshop production account recorded an annual turnover of \$8.986m.

Signs to the value of \$445 000 were manufactured by the Moonah Sign Shop.

Major work included continuation of Bridgewater Bridge strengthening to NAASRA standards, fabrication of a signal gantry, primary crusher isolation cabin and Jordan River Bridge beams. Moonah workshops also processed 440 tonnes of reinforcing steel.

Transport Section

Upgrading of transport equipment enabled the Division to cart D8 size dozers weighing some 45 tonnes each, and transport a section of a pedestrian overpass weighing 54 tonnes and 20.3m long.

Workshop Equipment Purchased

- 20 tonne Armstrong hydraulic jack—Launceston
- Karcher hot wash—Launceston
- Portable spot welder—Ulverstone
- Cold cut saw—Ulverstone
- Lincoln diesel portable 400 amp welder—Moonah
- Workshop vehicle mounted hydraulic hoist—Moonah
- Parken pedestal drill—Moonah
- 2.4 m power guillotine hydraulic clamps—Moonah
- Beetle gas cutter and tracks—Moonah

Depot Improvements

- Bitumen yard near carpenter's shop—Launceston
- Replace/relocate security fence—Launceston
- Install waste oil dispensing system—Ulverstone
- Replace two urinals in toilets—Moonah
- Replace 50 m of security fence—Moonah
- Modify 10 tonne overhead crane—Moonah Workshop
- Relocate heavy equipment wash facility—Moonah
- Replace carpenters shop roof—Moonah

Financial Statements

As from 1 July 1988 the Plant Division financial trading period changed from April/March to July/June fiscal year.

The Division trading account is the Road Construction Plant Suspense Account which must be kept as required by Section 6 of the Roads and Jetties Act 1935.

The Road Construction Plant Suspense Account financial statements for the period are reported in Annexure D.

SURVEY SECTION

General

The section provides survey and mapping services for road and bridge design, construction by direct control and contract, contract supervision, planning of future highway development, hydraulic investigations, civil design projects, Materials and Research investigations and for acquisition and disposal of lands. A total of 27 field survey parties operate from District Offices and project site offices.

Projects

Demand for services continued to be high, particularly from District Engineers requiring survey services for construction of works. The adoption of new policies and directions toward restoration and rehabilitation of existing road pavements was reflected in survey operations. There was a noticeable increase in demand for engineering surveys and a decline in requests for property surveys. A total of 159 survey projects for engineering design and land acquisitions was undertaken during the year. Surveys for acquisition and disposal of land involving 120 properties were completed.

Major projects included:

- Bass Highway (Burnie to Cooee)
- Bellerive Bypass
- Bridport Port Development
- Brooker Highway (Claremont Link Road to Granton)
- Deloraine Bypass
- East Tamar Highway (Windermere Road to Cummings Creek)
- East Tamar Outlet Extension (Newnham Creek to Barnards Creek)
- Esk Main Road (Ormley Deviation)
- Hobart Southern Outlet (The Lea to Kingston)
- Kings Meadows Connector and Interchange
- South Arm Secondary Road (Rokeby to Lauderdale)
- Tasman Highway (Falmouth to Chain of Lagoons)
- Tasman Highway (Lilydale to Scottsdale)
- Tasman Highway (Runnymede to Orford)
- West Coast Corridor (Balfour to Corinna)

Training and Development

A significant advance was the appointment of a Senior Surveyor to undertake survey research and development, develop Moss applications in the Survey Section and train survey personnel in Moss procedures and operations.

Together with the installation of Apollo stand-alone work stations and plotters in both the North East and North West District offices, significant gains were achieved in efficiency and productivity in the processing of field surveys.

The section continued to provide a training facility for students during the field practice year of the Bachelor of Surveying degree course at the University of Tasmania, with positions available in both the South East and North East District offices.

The National Survey Congress was held in Hobart in April and was attended by all Departmental surveyors. Prior to the Congress, the Department hosted a meeting of Chief Surveyors from all State road authorities.

MATERIALS AND RESEARCH LABORATORY

All three laboratories are registered by the National Association of Testing Authorities (NATA) for most routine control tests.

Laboratory Activities

The North West District Laboratory obtained NATA registration in the field of mechanical testing, including soils, aggregates and concrete. The three laboratories participated in NATA proficiency tests for Atterberg limits and concrete compression. The Central Laboratory participated in proficiency tests on paint.

Construction control tests including pavement materials and compaction remained at high levels in all districts. The North East District Laboratory took over the control testing of the Deloraine Bypass contract.

The Central Laboratory handled an unprecedented amount of soil mechanics testing, particularly triaxial shear testing for slope stability and landslide investigations.

The mobile asphalt laboratory was in operation for most of the year. Extensive calibration testing was undertaken for the commissioning of the new asphalt plant.

Field Testing

Pavement investigations continued to make up a significant proportion of work. A Benkelman Beam fitted with an automatic data acquisition system was purchased. This new device provides much greater precision in pavement analysis.

Geotechnical investigation continued into several large projects:—

- Old Surrey Road, Burnie, where nineteen boreholes were drilled over several months, followed by an extensive and uncompleted program of laboratory testing and analysis.
- Hawks Hill slip, Currie Harbour Breakwater quarry sites, and the South Esk River Bridge at Hadspen.

There was an investigation into possible sources of pavement gravels in the Marlborough Highway/Lake Highway area following announcement of the Wesley Vale Mill proposal, but this was suspended after preliminary studies only.

The section investigated a significantly high number of batter slips during the year. These were, Deloraine Bypass, Prospect, Bellerive Bypass, Smithton Bypass, Queenstown Hospital and Tullendeena.

ADMINISTRATION

General

As foreshadowed in the previous report, recruitment efforts concentrated on the replacement of a significant number of senior engineering staff who had retired over the preceding three years. This campaign was only moderately successful, but the Department gained the services of two senior and five career range engineers.

Staff

On 30 June 1989 the Department had an approved staff ceiling of 457 full time equivalent positions. The actual number employed at 30 June was 440, made up as follows:

- Professional Engineers—84
- Administrative, Accounts and Clerical Staff—143
- Surveyors and Survey Assistants—49
- Technical Officers, Engineering Assistants and Technicians—81
- Drafting Officers—50
- Keyboard Classifications—17
- Scientific Officers—6
- Other—10
- Total State Service Act Staff—440

These staff are located in the following offices:

- Head Office, Murray Street, Hobart—216
- South East District Office, Derwent Park—44
- North East District Office, Launceston—54
- North West District Office, Ulverstone—60
- Central Workshops and Stores, Moonah—42
- Materials and Research Laboratory, Derwent Park—24
- Total—440

Senior staff movements during the year were:

K. G. Lickiss was promoted to Assistant Director (Design)

K. A. Ryan was promoted to Assistant Director (Operations)

A. J. Broderick was promoted to Assistant Manager, Computer Operations

G. E. Clayton was appointed to Staff Development Officer

D. S. Mitchell was promoted to Executive Engineer, Programs

G. L. Booth was promoted to Section Engineer Bridge Design

S. K. Wong was promoted to Mechanical Engineer

P. J. Wood was promoted to Civil Works and Bridge Construction Engineer

J. F. Lennon was promoted to District Engineer, North East

P. E. Giltinan was appointed to Chief Engineer, Operations

S. J. Dahlenburg was promoted to Executive Engineer, North East

E. A. Pitman was promoted to Section Engineer Bridge Design.

The following officers retired or resigned during the year after lengthy periods of service:

- G. J. Murray, Drafting Officer—15 years
- R. A. Campbell, Drafting Officer—18 years
- R. M. Cover, District Engineer, North East—19 years
- D. Seaton, Engineer—30 years
- B. J. Poole, Traffic Enumerator—28 years
- M. K. Good, Clerk—28 years
- C. G. Richardson, Tea Attendant—15 years
- L. A. Warren, Superintendent—23 years
- C. Brown, Engineer—17 years
- R. C. Fenton, Supervisor—28 years
- J. A. Hope, Programmer—Scientific—20 years
- W. A. Fox, Supervisor (Plant)—25 years
- W. M. Cartledge, Supervisor—40 years
- D. M. M. McMahon, Superintendent (Maintenance)—17 years
- E. G. Ashlin, Senior Clerk—41 years
- W. L. Rowlands, Clerk—26 years.

Staff Development

The Department recognised the need to place greater emphasis on staff development in producing a more streamlined, competitive organisation. Training is making a strong contribution towards giving staff a wider range of technical, managerial and personal skills.

The new position of Staff Development Officer was filled early in the financial year. Thirty one in-house courses were arranged, with a total attendance of 408. The Department also sent various employees on a wide range of external courses, conferences and seminars. Forty eight people were undertaking formal study at a university, technical college or college of advanced education. Many were receiving some form of study assistance from the Department.

A number of initiatives during the year included:

- the Performance Review and Development Program (on a trial basis only)
- the Graduate Engineer Training Program—a series of seminars for class I engineers
- an induction program
- a computerised staff development records system
- a structured training program for foremen
- the Work Place Basic Education Program (basic skills training for blue collar workers).

Long Service Awards

The following employees received awards:

40 Years Service

G. F. Arnol
D. D. Dawkins
R. V. Martin
T. V. Martin
R. O. Sperring

35 Years Service

F. R. Douce
L. W. Hills
R. F. Read
V. C. Steven
G. Surtees
K. M. Swan
D. J. Wiggins

25 Years Service

W. M. Binns
V. V. Breward
T. G. Brown
D. J. Burk
R. A. Chamberlain
C. H. Clark
B. E. Collis
D. W. Corbett
A. M. Dennison
W. P. Doe
A. N. Fearnley-Sander
R. M. Felmingham
M. D. Foster

P. C. Fox
W. A. Fox
D. C. Gregs
L. E. Johnston
B. E. Kaine
J. F. Lennon
L. H. Reeve
L. A. Richardson
M. J. Roles
R. D. Stacey
A. J. Tatnell
J. R. Turnbull
P. J. Wood

Industrial

As at 30 June 1989 the numbers of Award employees engaged in workshop and field operations in the Districts were:

	South East	North East	North West	Moonah Depot
Construction	196	161	166	....
Maintenance	91	72	77	....
Workshops .....	....	65	60	121
Other	1	....	4	2
Total: 1016	288	298	307	123

Retirements for the year totalled 23, including the following long serving former employees:

Retirements due to age:

F. J. Blackberry—Truck Driver—41 years
W. J. Collis—Foreman—39 years
W. Horne—Plant Operator—39 years
J. F. Hennessy—Truck Driver—37 years
W. C. Reardon—Plant Operator—33 years
J. R. Bramich—Foreman—32 years
V. G. Geeves—Electrician—27 years

Retirements due to ill health:

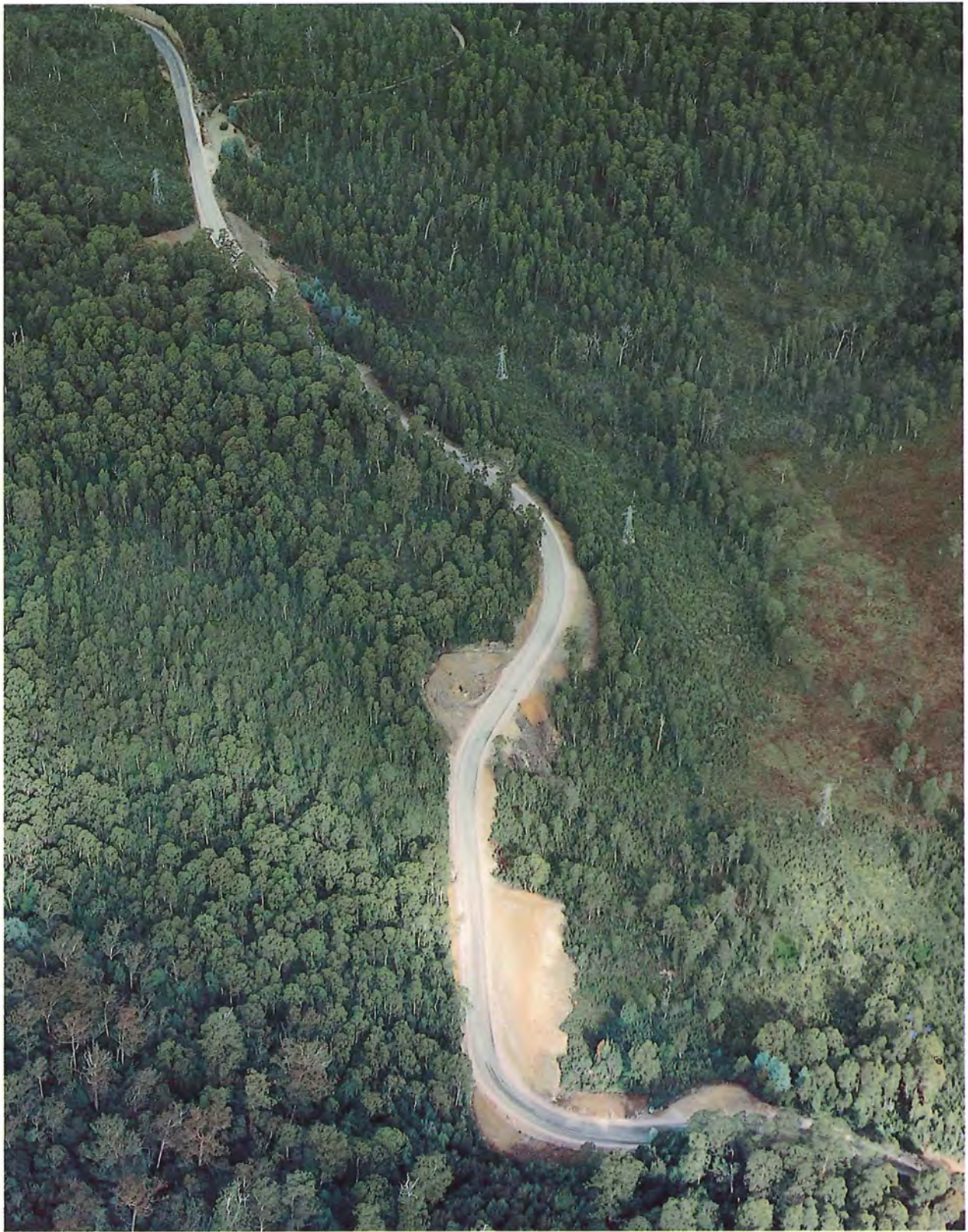
A. Johns—Plant Operator—25 years
J. A. Poulton—Plant Operator—24 years
E. R. Ainslie—Foreman—21 years

Workers' Compensation

The following payments under the Workers' Compensation Act were made for the year ended 30 June 1989:

	\$
Weekly payments	359 821
Medical payments	132 471
Lump sums	94 400
Administration Fee (T.G.I.O.)	23 035
Total	\$609 727

Recoveries from the Motor Accidents Insurance Board totalled \$30 495.



LYELL HIGHWAY
Reconstruction



CRADLE MOUNTAIN LINK ROAD
Que River to Learys Corner



KING RIVER BRIDGE SITE



BASS HIGHWAY
Forth River to Ulverstone

Occupational Health and Safety

The Occupational Health and Safety Supervisor continued to maintain regular contact with all work sites throughout the year. Training was conducted in the following categories:

- First aid
- Crane operation
- Explosives (Engineers and Supervisors)
- Safety instruction (Apprentices)
- Weed spraying
- Chain saw operations
- Scaffolding

Particular attention was given to improving the awareness of key employees of hazardous or toxic materials.

Success was achieved at gang level with no less than nine National Safety Council awards gained throughout the State. This brought to 34 the total of such awards gained by the Department since 1980.

There was a marginal increase in accident frequency and in the average time lost per accident. The reasons for this were being examined by the Department's Central Safety Committee.

Computer Information Services Section

This Section provides computer services to both technical and administrative users with the aim of improving efficiency of operations. The services provided are consulting, system development, access to external bureaux services at the State Computer Centre and Transport Tasmania, personal computer software and hardware support and some hardware maintenance facilities.

Major activities during the year included:

- Upgrading the Prime 2755 to a Prime 4150 and the provision of an additional 64 terminal lines.
- Acquisition of three additional APOLLO workstations for surveyors' use in District offices with plotters attached to the northern stations.
- Purchase of 15 NEC Powermate personal computers.
- Purchase of 22 Prime 250 terminals and 21 printers including high speed printers for the offices remote from Head Office.
- Development of the Project Control Management System.
- Implementation of these systems:—

Staff skills and development:

- Workshop costing returns
- Plant hire returns data entry

- Stores and fuel issues returns.
- Depot Management System—analysis of user requirements and the preparation of a tender specification for plant, stores and workshops software and hardware to support these operations.

Property Office

Property acquisitions totalling 157 were completed, 71 were started and at 30 June 1989, 266 acquisitions were in progress. Expenditure on property acquisitions for the year was \$3.240m, compared with \$2.599m for the previous year. Included in this total was an amount of \$1m for the Kings Meadows Connector and \$819 000 for National Highway projects.

The major areas of expenditure included the purchase of properties affected by the constructions of the Kings Meadows Connector, Bass Highway (Penguin to Howth and Prospect Vale to Hagley), Deloraine Bypass and the Tasman Highway (Falmouth to Chain of Lagoons).

Many minor property acquisitions resulted from the reconstruction of the Arthur Highway, Huon Highway, and the Cradle Mountain and Guildford to Hampshire Link roads.

Stores

The total value of all stores issued during the 1988-89 financial year from the three District stores was approx. \$3.337m. The value of stores holdings as at 30 June 1989 was \$1.346m.

Construction Stores Stock Ledger Value

	Moonah	Launceston	Ulverstone	Total
Opening stock (1988)	\$913 341	\$213 410	\$209 347	\$1 336 099
Closing stock (1989)	\$859 616	\$253 183	\$233 262	\$1 346 062
Increase stock . . . . .	....	\$39 773	\$23 914	\$9 962
Decrease stock	\$53 725	....	....	....

The increase in stock holding value totalling \$9 962 was due to cost item inflation. Stock levels were reduced.

Period contract orders placed for stores totalled 9 522. Orders processed through the Supply and Tender Department totalled 17 998. Petty cash purchases totalled 3 202.

Construction Stores Maintenance Account

	\$
Construction Store Budget	225 000.00
Expenditure	243 805.00
	18 805.00

The Annual Internal Audit was completed in all Districts with the following results:

	Moonah	Launceston	Ulverstone
Items counted	5 225	2 780	4 443
Discrepancies	407	82	162
Slow moving	1 557	309	448

Contracts

The following contracts were entered into during 1988-89 (excluding building demolitions and sub-contracts).

Contract No.	Description	Price \$
R-N/R-114	East Tamar Highway, Reconstruction for one kilometre north from Northern Rail Overpass	573 219.20
R-N/B-130	Fourteen Mile Creek Bridge Widening, East Tamar Highway	594 120.00
B-N/B-138	Bass Highway, Deloraine Bypass, Deloraine Rail Underpass and Bowerbank Stock Underpass	869 800.00
R-N/R-139	Kings Meadows Interchange Underpass and Roadworks	2 726 573.15
R-A/B-141	Tasman Highway, Scamander River Bridge, Supply of Steel Pile Shells	285 398.00
R-N/R-142	Bass Highway, Ulverstone, Lovett Street Interchange Ramps	1 065 712.45
B-A/R-151	Royal Park Interchange, Launceston Road No. 4 Construction	433 091.30
R-N/R-156	Bass Highway Deloraine Bypass Roadworks Stage 1	6 841 635.23
R/SE-413	Tasman Bridge, Tow Truck Service	Schedule of Rates
R/SE-414	Tasman Bridge, Traffic Control Officers	19 253.00
R-S/E-1065	Brooker Highway, Derwent Centre Access Kerb and Channel Works	28 891.00
R-S/E-1066	Bellerive Bypass, Mornington to Shoreline Drive, Kerb and Channel Works	74 826.50
R-S/E-1069	Brooker Avenue, Risdon Road to Elwick Road, Asphalt Surfacing	184 697.50
R-S/E-1070	Brooker Highway, Derwent Centre Access, Asphalt Surfacing	57 412.00
R-S/E-1071	Brooker Avenue, Risdon Road to Elwick Road Kerb and Channel Works	25 402.00
A-A/R-1073	Brooker Highway, Jimbiri Street Overpass to Claremont Link Road, Kerb and Channel Works	39 632.00
R-S/E-1074	Bellerive Bypass, Mornington to Shoreline Drive, Kerb and Channel Works, Ch 1800-2700	48 594.00
R-S/E-1075	Bellerive Bypass, Mornington to Shoreline Drive, Kerb and Channel Works, Ch 2900-3600	31 344.00
R-S/E-1076	Tasman Highway, Tasman Bridge to Davies Avenue, Asphalt Surfacing	51 342.30
R-S/E-1078	Bellerive Bypass, Mornington to Shoreline Drive Ch 140-1800, Asphalt Surfacing	154 665.50
R-S/E-1080	Bellerive Bypass, Shoreline Roundabout Ch 2700-2900 Kerb and Channel	17 645.50

Agreements

Contracts below \$20 000 in value (\$30 000 for bituminous works) are usually the subject of a simplified written agreement. The following agreements (excluding consultants) were entered into during 1988-89.

	Bridges	Sealing	Gravel	Others	Total
North West District	1	14	29	9	53
North East District	6	1	17	16	40
South East District	1	13	8	16	38
Head Office	2	....	2	3	7
Totals	10	28	56	44	138

ROAD AND BRIDGE PROJECTS North East District

NATIONAL HIGHWAY

Midland Highway

Perth Bypass

Detailed socioeconomic and engineering analysis of the bypass options was undertaken. In February an Overview Report was sent to the Federal Government recommending the adoption and declaration of a western bypass of Perth as the agreed line.

When Federal Government approval is received, the route will be protected by a Section 9A proclamation.

Overtaking Lanes, Perth to Conara

Sites were identified and design of five sections of double overtaking lanes along this length commenced.

Kings Meadows Connector Interchange

This structure will provide access between the Kings Meadows Connector and the Launceston Southern Outlet. A contract for its construction worth \$2.7m was let to the Department of Main Roads and work began in January. Production of precast post-tensioned beams was almost half completed. The project is expected to be completed in July 1990. Works were suspended towards the end of the year due to a shortage of funds.



Total expenditure for 1988-89 was \$684 000 for the supply of reinforced earth components, interchange contract works, accommodation works and acquisitions.

Bass Highway

South Esk River Bridge, Hadspen

Investigation continued for a high level six span bridge, 230m long, with an incrementally launched steel plate girder super structure, on a new alignment of the highway.

Prospect Vale to Pateena Road

A contract valued at \$3.34m was awarded in February 1988 to Shaw Contracting Pty Ltd for the construction of some 2.0km of dual carriageway on a new alignment adjacent to the existing Bass Highway.

By 30 June 1989 most of the drainage works and earthworks were completed. Work had begun on placing select subgrade on the eastern end of the works. Expenditure in 1988-89 was \$1.220m and the total expenditure on the project to 30 June 1989 was \$2.140m.

Pateena Road to Illawarra Main Road

Final design for this section of 6.2km was expected to be completed during 1989-90, following receipt of a report on materials likely to be encountered in the large cut east of the South Esk River.

Illawarra Main Road to Hagley

Design for 0.7 km of road approaches for the Bracknell Main Road Underpass was undertaken by consultants.

Consultants completed the road and bridge designs for 11 km of this section of the proposed highway, in liaison with Departmental officers. Design of the remaining 3km was delayed pending approval of the proposed alignment by the Federal Government. Expenditure on acquisition and construction fees has amounted to \$867 000.

Bishopsbourne Road Overpass

This contract for the construction of a three span structure and road approaches to carry the new Bass Highway over Bishopsbourne Road was awarded to the DMR in June 1988. Design of the road approaches was undertaken by consultants.

Works were completed at a cost of \$533 000.

Hagley to Westbury

Following a public display in July, a recommendation that the 'northern' route between Hagley and Westbury be adopted was submitted to the Federal Government in a Highway Planning Report in September.

Westbury to Deloraine

The Federal Government chose the railway alignment route north of Exton in preference to the State Government recommendation, of the southern route. The explanation provided by the Federal Minister for this decision was that the transport corridor was already established, would be shorter, cheaper to build and had wide support in the community.

NATIONAL ARTERIAL ROADS

East Tamar Highway

Four Mile Creek Road Widening

These works involved the replacement of a narrow bridge with a box culvert structure and subsequent road approaches. The contract was awarded to the DMR and works were completed. Expenditure for 1988-89 was \$317 000 and total expenditure to 30 June 1989 was \$352 000.

North from Northern Rail Overpass

Design was completed for the realignment and reconstruction of 1km of narrow pavement. The Department won the contract in February and work was completed in May, for a total cost to 30 June 1989 of \$611 000.

Fourteen Mile Creek

Bridgeworks involved widening on the western side of the existing structure from 7.3m to 11m between kerbs.

A contract was awarded to the Department in March and construction of the abutments, pile driving and reconstruction of the eastern kerb were completed. Expenditure to 30 June 1989 was \$359 000.



Roadworks design associated with widening of Fourteen Mile Creek Bridge was completed.

Windermere Road to Cummings Creek

Four separate sections of the highway were considered for improvements and detailed design was nearing completion.

At Los Angelos Road and Windermere Road junctions, sight distance is to be improved and left turn deceleration lanes and left side passing bays are to be provided.

Overtaking lanes were designed for the Doctors Hill and Cummings Creek sections.

A passing bay is to be constructed on Likemans Hill to alleviate conflict with traffic turning right into a service station.

Newnham Creek to Landfall Gate

In April a project proposal report was submitted to the Federal Government, recommending a line for extending the East Tamar Outlet through to Landfall and Barnards Creek.

Detailed design began in June. Preliminary field work by Materials and Research detected unstable areas along the route which will require consolidation prior to final road construction. Further site investigation will be undertaken.

URBAN ARTERIAL ROADS

Launceston Southern Outlet

Glen Dhu Corridor

Landscaping works by the Launceston City Council were completed and minor additional works by the Department completed the project. Expenditure for 1988-89 was \$438 000, including acquisition and landscaping costs. Total cost to 30 June 1989 was \$11.392m.

Kings Meadows Connector

This project will link the Southern Outlet with Hobart Road at Kings Meadows. The facility will consist of approximately 2km of single carriageway linking a grade-separated interchange on the Launceston Southern Outlet with an at-grade intersection at Hobart Road and a road connection with Quarantine Road.

Detailed design was completed for the section west of Hobart Road and was well advanced for the short section east of Hobart Road, connecting with Quarantine Road.

The main carriageway earthworks were completed in February and pavement construction was about 25 per cent complete. Significant service upgrading and relocation works at the Hobart Road junction began.

Expenditure in 1988-89 was \$2.163m, which included roadworks, acquisition and design costs. Total expenditure to 30 June 1989 was \$2.999m.

West Tamar Highway *Riverside—Retaining Wall Reconstruction*

These works involved the construction of 70m of retaining wall near Cormiston Road, to replace an existing wall which had failed. The 1988-89 expenditure on this wall was \$164 000.



Road No. 4, Royal Park Interchange

Tenders for the construction of a link road between Cimitiere Street and Wellington Street resulted in Stornoway Gravel Construction Pty Ltd being awarded the contract. The link forms the final stage of the interchange.

The project also required the construction of a curved reinforced earth retaining wall, some 160m in length. Design of a two span steel gantry for traffic signals was completed and a start was made on its construction.

Supervision was undertaken by Launceston City Council. Expenditure in 1988-89 was \$586 000.

RURAL ARTERIAL ROADS

Tasman Highway

Ringarooma Main Road to Branxholm—Legerwood Rivulet Bridge

Roadworks, including erection of guardrail, kerb and channel construction and sealing of the pavement for both of the approaches were completed.

Bridgeworks included the completion of pier crossheads, installation of precast beams and deck slabs and construction of the deck and bridge fence. The bridge was opened to traffic in June.

Expenditure for 1988-89 on roadworks was \$373 000 and for bridgeworks was \$517 000. The total cost to 30 June 1989 for roadworks was \$1.504m and for bridgeworks was \$1.341m.

Branxholm to Derby

Design investigation was undertaken on a substandard section of highway through Branxholm from Ringarooma River for about 0.95km towards Derby, to link previously reconstructed sections.

Nunamara to the Sideling

A 0.75km section of road south of St Patricks River was designed on a restoration/rehabilitation basis. Works included widening of the carriageway and curve improvements either side of Bennies Creek. Expenditure in 1988-89 was \$95 000.

An asphalt surfaced car park was constructed to serve the Sideling Lookout. Total cost was \$40 000. Other facilities were provided by the Scottsdale Council and tourism organisations.

The Sideling to Brid River

Works continued with curve widening, sight benching, drainage and final sealing. Expenditure in 1988-89 was \$119 000 and total cost to 30 June 1989 was \$350 000.

Scamander River Bridge

All 25 beams were cast and the northern abutment was constructed to beam seat level. Temporary staging was constructed to allow crane access and piling construction to proceed on four piers.

Excavation was completed for driving piles for the first pier and one pile was driven and concreted in each of the first two piers. Sufficient piles were fabricated for driving in the second pier.

Expenditure for 1988-89 was \$1.328m and the total cost to 30 June 1989 was \$2.22m.



Elephant Pass Safety Improvements

Steel galvanised posts and wire safety fencing were installed for 1.0km. Several sharp curves near the tea rooms were improved to provide better sight distance. Shoulder widening was undertaken on a 1km section of the northern approach to the Pass.

Expenditure for 1988-89 was \$168 000 and total cost to 30 June 1989 was \$425 000.

Coles Bay Turnoff to Swansea

Centreline survey plot was provided for rehabilitation works between Coombend and Mills Marsh. Design was completed and plans issued for curve improvements at Apslawn Bridge.

Work began south of the turnoff and extended for 3km, including strengthening and widening of shoulders, construction of new table drains, acquisition and fencing, reconstruction of the southern approach to the bridge and an asphalt overlay over the total length of the works. Expenditure in 1988-89 was \$506 000.

Falmouth to Chain of Lagoons Link Road

Design was completed for the remaining 3km section between Tasman Highway and Four Mile Creek Road.

Earthworks were almost completed between Hughes Creek and the Tasman Highway at Chain of Lagoons.

Work on the southern section near Chain of Lagoons was suspended following the discovery of a pesticide dump within the road cutting.

Stabilisation of 6.5km of sub-base was undertaken and 3.5km of base course gravel were placed on the Four Mile Creek Deviation.

Expenditure in 1988-89 on roadworks was \$1.630m.

Hughes Creek Culvert

Bebo Arch units were installed and the earth embankment constructed to complete the works. Expenditure for 1988-89 was \$152 000 and total expenditure to 30 June 1989 was \$188 000.

Little Marsh Creek Culvert

Design was completed for this reinforced concrete single cell box culvert, which was constructed during 1988-89 at a total cost of \$99 000.

Lower Marsh Creek Bridge

Design was completed for this reinforced concrete twin cell culvert. These bridge works were nearing completion at the end of the financial year and expenditure for 1988-89 was \$112 000.

Expenditure in 1988-89 for road and bridgeworks on the Falmouth to Chain of Lagoons Link Road was \$2.118m and total expenditure on the project to 30 June 1989 was \$9.44m.

West Tamar Highway Exeter Bypass

A scheme for linking Frankford Main Road to the West Tamar Highway north of Exeter was proposed for discussion with landowners. Priority of this proposal was reduced by cancellation of the Wesley Vale Pulp Mill project.

Cormiston Creek to Legana

Work undertaken in 1988-89 involved the placement of additional surcharge material on the embankment between Cormiston Creek and Danbury Park. Expenditure in 1988-89 was \$159 000 and total cost to 30 June 1989 was \$3.417m.

Cormiston Creek Bridge

Reinforced concrete piles were constructed and delivered to site. Expenditure for 1988-89 was \$60 000.

Legana to Muddy Creek

The Muddy Creek climbing lane was completed together with white shoulder seal and construction of 300m of sealed verge and kerb and channel within the northern town boundary of Legana. The expenditure for 1988-89 was \$86 000 and the total cost to 30 June 1989 was \$1.788m.

Muddy Creek to Lanena

Safety improvements were undertaken, including construction of a left turn lane at McEwans Road, pavement for turning lanes at the northern entrance to Grindelwald and stabilisation of a slip in a cut batter. Expenditure in 1988-89 was \$111 000 and the total cost to 30 June 1989 was \$600 000.

Bradys Lookout Climbing Lane

Completion works on the climbing lane and car park included fencing and landscaping. Expenditure in 1988-89 was \$69 000 and the total cost to 30 June 1989 was \$776 000.

Exeter to Batman Highway—Restoration

Preliminary plans were prepared for sections requiring rehabilitation. Of a total length of 6km, 2.8km were investigated for design and design was still to be completed.

Work began on the section from the Supply River bridges to the Batman Highway. Reconstruction of approximately 1 km was undertaken to improve the sight distance and alignment. Strengthening and widening of shoulders and major drainage works were performed over the remaining 2km. A correction layer of asphalt was applied to the total length to be followed by a final asphalt surface and white shoulders.

Expenditure for 1988-89 was \$598 000 and the total cost to 30 June 1989 was \$986 000.

Bridport Main Road

Bridport to Bell Bay

Rehabilitation involved gravel overlay and sealing of about 2km near the Pipers River Secondary Road junction and also 1km west of Troopers Track junction. Expenditure in 1988-89 was \$367 000.

Esk Main Road

Avoca to Ormley

Design was completed, apart for minor access details, for an 8.5km flood-free deviation. Preliminary work began late in the year and total expenditure was \$69 000.

Frankford Main Road

Survey and design were undertaken for curve improvements to a 0.9 km section near Franklin Rivulet at Frankford and replacement of an old timber bridge.

Lilydale Main Road

Underwood Deviation to Lilydale

This contract, which was won by the DMR, involved the reconstruction of 3 km of road and installation of two large box culverts. The work was completed in December and expenditure in 1988-89 was \$1.152m. Total cost to 30 June 1989 was \$1.717m.

Lilydale to Scottsdale—Golconda Road (Alternative route for Tasman Highway)

A public display of a proposed deviation between Lilydale and Wyena was held in Lilydale and Scottsdale early in 1988-89 and it was planned to seek Ministerial approval for protection of the route.

Pipers River Secondary Road

Hogans Brook Bridge

The old timber bridge was replaced with a twin cell box culvert at a cost in 1988-89 of \$57 000. Sealing and linemarking were to be completed.

LOCAL ROADS

Blessington Main Road

Design was completed for widening and minor profile improvements to two sections between St Leonards and the Corra Linn Bridge.

Rehabilitation works were undertaken over a length of 2.5km involving reconstruction of about 1km of road with widening and gravel overlay over the remaining section. Expenditure in 1988-89 was \$430 000.

Coles Bay Tourist Road

Three km were sealed and a further 3km were reconstructed at a cost of \$444 000. Total expenditure to 30 June 1989 was \$3.849m.

ROAD AND BRIDGE PROJECTS North West District

NATIONAL HIGHWAY

Bass Highway

Deloraine Bypass

Stage 1 comprises the construction of about 5km of the main carriageway. Design was revised as a result of changes to the line at the eastern end and to the vertical alignment west of the river.

The DMR won the roadworks contract with a tender price of \$6.842m. Work began in late January and rapid progress was made. By 30 June all excavation and most embankment and drainage works were completed. Pavement construction was in progress. A total of 6.3 lane km were completed.

Total expenditure on the contract to 30 June 1989 was \$3.401m.

Stage 2 design was completed, comprising construction of connections to the existing Bass Highway at the eastern and western ends of the bypass. A roundabout is incorporated at the eastern end.

Writing of the contract specification began in June 1989. It is intended that this project be the pilot contract under a Quality Assurance scheme. Federal Government approval was received for the project proposal report. Accommodation works were completed and the bypass is expected to be opened in April 1990.

Mersey River (Victoria) Bridge, Devonport

Investigation began for a second bridge, adjacent to the existing structure, to carry the proposed second carriageway of the Highway. The proposed five span structure is 188m long and utilises incrementally launched steel plate girders. Complex piled foundations are required. Construction is not expected for several years.

Duplication, Forth River to Ulverstone

The Roadworks Stage 2 contract, officially opened to the public on 15 March, is the final contract to complete the 10.2km upgrading of the Bass Highway between Don Hill and Ulverstone. A total of 12.7 equivalent lane km were completed.

Expenditure in 1988-89 was \$2.541m and total expenditure to 30 June 1989 was \$3.565m.

Lovett Street Interchange, Ulverstone On/Off Ramps

The contract for construction of ramps to connect the Bass Highway and Lovett Street at Ulverstone was awarded to the Department. The ramps will provide improved access to the central industrial and business area of Ulverstone as well as improved general access to the Ulverstone area.

Work on the \$1.065m contract began on 10 November. Earthworks, drainage and the Short Street pedestrian subway were practically completed.

Expenditure in 1988-89 was \$532 000 and the total cost to 30 June 1989 was \$620 000. It was necessary to suspend work towards the end of the year due to lack of funds.

Duplication, Ulverstone to Penguin Stage 1

Further design was required to achieve improved batter stability and better private access arrangements. Design was completed for an addition to the existing superstructure of South Road Overpass to provide a separate footway, with a concrete slab supported by steel brackets cantilevered from the existing kerb.

Earthworks, drainage and pavement works were almost complete by the beginning of the financial year. The major activity of 1988-89 was the South Road Overpass southern abutment retaining wall.

The westbound carriageway was opened to traffic in April and by 30 June 1989 the project was practically complete. Some sealing and linemarking remained to be completed and construction of the South Road overpass footway. An equivalent lane km of 8.0km was completed.

Expenditure in 1988-89 was \$935 000 and the total cost to 30 June 1989 was \$2.897m.

Penguin to Howth

Due to problems associated with property acquisition, access to Penguin, increasing costs and unstable ground conditions, this project is subject to a major review. Several options for a final alignment were under consideration.



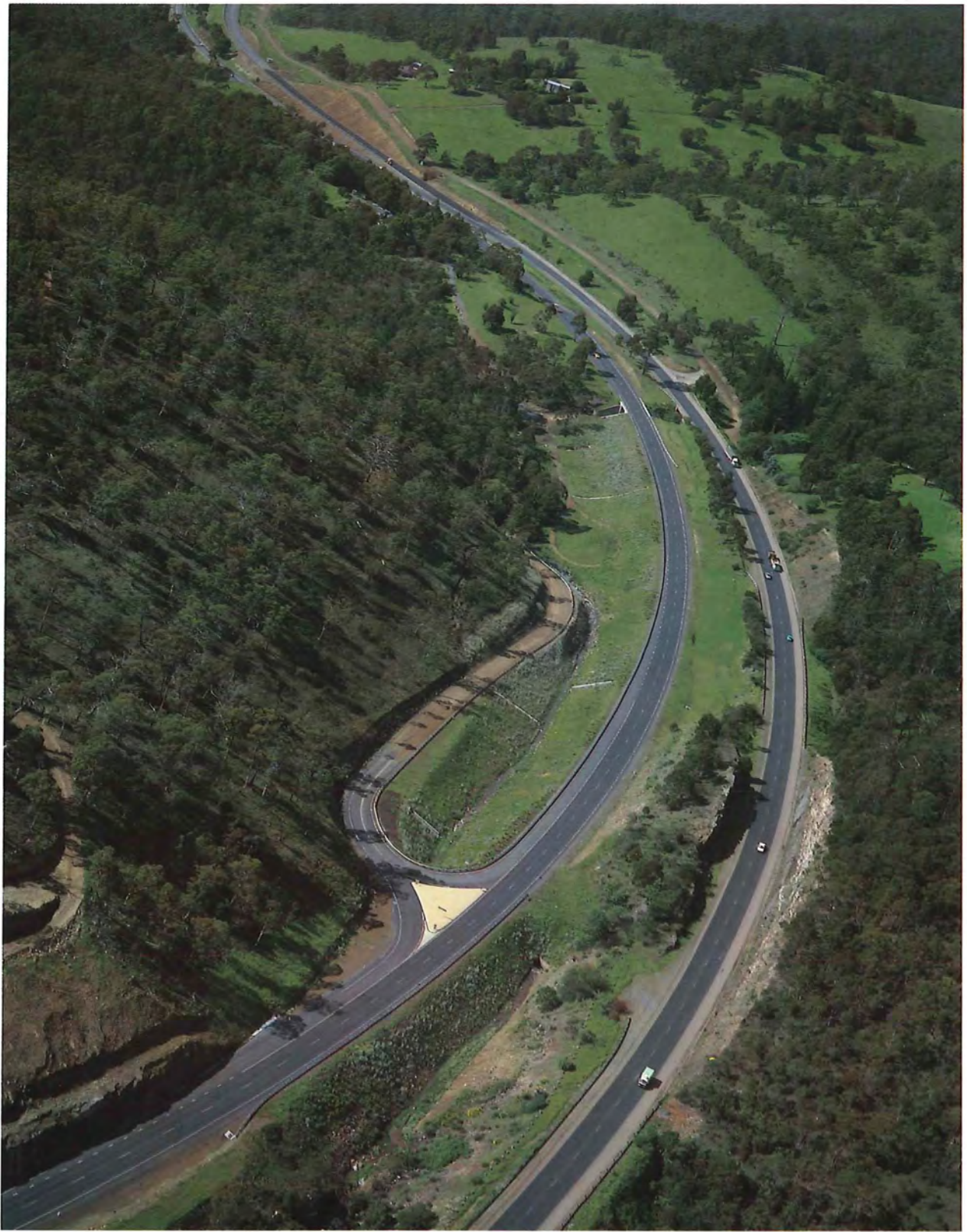
*KINGS MEADOW CONNECTOR
Hobart Road to Launceston Southern Outlet*



*BASS HIGHWAY
Prospect Vale to Pateena Road*



ARTHUR HIGHWAY
Eaglehawk Neck to Taranna



HOBART SOUTHERN OUTLET



DELORAINE BYPASS
 Rail Overpass and Stock Underpass



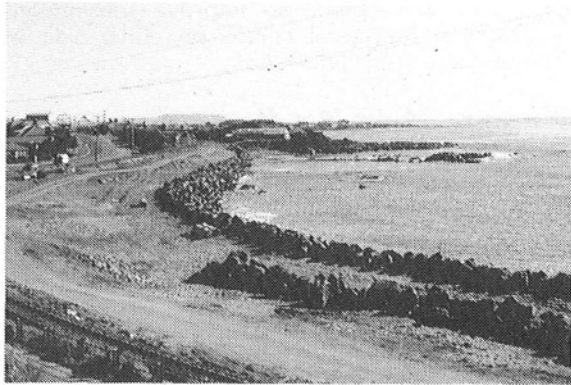
BASS HIGHWAY
 Bishopsbourne Road Underpass

NATIONAL ARTERIAL ROADS

Bass Highway

West Park to Toorak Court, Burnie

Earthworks for railway relocation between Burnie and Cooe began on 14 March. By 30 June 1989 the fill was almost complete to above normal high tide level and about one third of the rock armour and drainage was in place.



Design was continuing for 1.37km of dual carriageway, to be constructed by contract.

Expenditure to 30 June 1989 was \$733 000.

Cooee to Cam River

Detailed investigation began into options for a dual carriageway through this area. Preliminary investigation of the structures required was undertaken. A public display of the options is proposed for 1989-90.

Cam River Bridge, Somerset

Investigation and initial design work were undertaken for a seven span structure, adjacent to the existing, to carry the proposed second carriageway of the Bass Highway. The proposed bridge is 130m long, with post-tensioned I beam superstructure.

RURAL ARTERIAL ROADS

Burnie Access Roads

Investigation continued into options for upgrading the connection of the Ridgley Main Road to the Bass Highway at Burnie. All routes identified would be flawed by ground instability or existing development.

Ridgley Main Road/Mount Road

An internal planning report was compiled, dealing with proposals to upgrade the existing road between Hampshire and Ridgley.

Work continued on bypass proposals for Ridgley, to be related to investigations into long-term route possibilities north of Ridgley.

Access to Valentines Estate

Design began for widening of Ridgley Main Road at the junction of the access road to the housing estate. Negotiations were under way to improve bus and pedestrian facilities for school children. The improvements would be minimal due to possible re-routing of Ridgley Main Road.

Bass Highway

Cassidys Bog to Rocky Cape Road

A section of 4km was widened by 1.2m and pavement superelevations and general shape improved at selected locations between Boat Harbour junction and Rocky Cape. This completed the first stage of rehabilitation of the highway between Boat Harbour junction and Black River, just east of Wiltshire Junction. Expenditure for the year was \$406 000 and the total cost to 30 June 1989 was \$888 000.

Smithton Bypass

Design of temporary works at the roundabout enabled opening of the bypass to traffic. Delay in completion was due to funding restraints and difficulty in the removal of a shop and house on the southern side of the roundabout. The project is expected to be completed in 1989-90. Expenditure in 1988-89 was \$108 000 and the total cost to 30 June 1989 was \$1.522m.

Lake Highway

Golden Valley to Breona

Heavy earthworks, with a high percentage of rock which required blasting, was the main activity. Earthworks on this 6.9km section are now almost complete and 1 km of prime and seal were completed. Expenditure in 1988-89 was \$770 000 and the total cost to 30 June 1989 was \$3.888m.

Lyell Highway

Nelson River to Donaghys Hill

Rehabilitation from Nelson River to Donaghys Hill began in August with the establishment of a camp at Princess River.

By 30 June 1989, a 1.5km section at Donaghys Hill had been sealed, with earthworks and pavement almost completed over a further 4.2km. Excavation was 80 per cent complete for a further 1km. Work began on the sensitive Nelson River to Victoria Pass section.

Expenditure for 1988-89 was \$1.392m for an equivalent of 10.8 lane km.

Victoria Valley Road to 6km South

Work on this section was completed, including excavation and backfill of failed pavement sections, widening of shoulders, a variable depth sub-base overlay, placement of base course and a prime and seal.

Expenditure in 1988-89 was \$431 000 and total cost to 30 June 1989 was \$911 000.

King River Development

The Hydro-Electric Commission completed designs for the western approach from Kelly Basin Road to the new bridge proposed at Lake Burbury. Preliminary design for the eastern approach was submitted to the Department and detailed design incorporating DMR requirements was being completed by the Commission. Total length of the deviation arising from the construction of Lake Burbury is 7.2km.



Tarraleah Canal Bridge

Design was approved in principle for the road approaches to a proposed replacement bridge over Tarraleah Canal.

Marlborough Highway

Survey continued, ultimately to cover the entire length of highway.

Murchison Highway

Henrietta

Additional survey was carried out to establish the centreline of a proposed new alignment to eliminate a series of substandard curves south of Henrietta.

Port Sorell Main Road

Approaches to Wesley Vale Mill from the Bass Highway

Measures to improve the approach roads to the proposed pulp mill at Wesley Vale were considered. These included upgrading Port Sorell Main Road from the Bass Highway towards the mill site and improvements to Airport Road and Mill Road. A preliminary report, including estimates, was prepared.

Pardoe Road, Airport Road Roundabout and Climbing Lane

Design of the roundabout to replace the present junction with Pardoe Developmental Road and the road to East Devonport was well advanced. Design of the climbing lane was to follow.

Sheffield Main Road *Weekes Road Junction*

Design of two options to improve substandard vertical and horizontal curves on either side of this junction was completed.

Waratah Main Road *At the Fingerpost*

Preliminary design for a weighbridge site was completed.

Heazlewood River Bridge

After bridgeworks which began in the preceding year were completed in October, associated roadworks began and were completed in April.

Expenditure on bridgeworks in 1988-89 was \$179 000 and total cost to 30 June 1989 was \$401 000.

Roadworks expenditure in 1988-89 was \$228 000.

Guildford to Hampshire Link Road

Roadworks concentrated on pavement construction and sealing. Sub-base placement was almost completed and the majority of the base course. Sealing during the summer extended from within 400m of the Murchison Highway junction for about 12.5km northward.

After the road opened to traffic in early May there was little opportunity for further sealing, due to weather conditions.

In all, 18km of sub-base, 21km of base course and 12km of seal were completed. Drainage and most cleanup works were completed. Boundary fencing was 60 per cent complete.

Roadworks expenditure in 1988-89 was \$5.103m and total overall cost to 30 June 1989 was \$15.321m.

Que River to Learys Corner Link Road

Design of a standard junction was completed for the access road to Hellyer Mine. Arrangements were made to bring forward construction of the section from Murchison Highway to the mine access road to permit early use by mine vehicles. Aberfoyle Ltd reimbursed the Department for additional costs incurred. Design and construction of a rail underpass for the spur line of the Emu Bay Railway to the mine were undertaken by Aberfoyle Ltd.

Earthworks, culverts, sub-base and base course of the link road were completed. Sealing of 20.5km with a primer seal was completed. Guard rail was erected over 2 400m and the majority of guide posts were installed. General cleaning work for 19.5km was completed. Equivalent lane km of road construction completed during 1988-89 was 13.16km.

Expenditure for 1988-89 was \$3.423m and total expenditure to 30 June 1989 was \$12.964m.

Smithton to Zeehan Corridor *Balfour to Lindsay River*

Partial road construction was completed to Lindsay River, which enabled construction of the Lindsay River Bridge, a two span, single lane structure with steel and timber superstructure on reinforced concrete substructures.

Expenditure on roadworks in 1988-89 was \$1.152m and on bridgeworks was \$126 000.

South of Lindsay River, about 9km of preliminary design was issued. Route clearing and stripping were proceeding.

A further 9km of preliminary design was in progress. A suitable crossing site of the Donaldson River was determined and verified by ground survey. This investigation required the use of helicopter services.

Pieman River Crossing, Corinna

A detailed investigation was made into the costs and feasibility of using a ferry instead of a bridge at this location. Cost benefit studies were made for both options, and a major report 'Pieman River Crossing at Corinna—Economic Evaluation' prepared.

A design corridor was established through Corinna and considerable investigation for bridging was undertaken.

Total expenditure on the corridor to 30 June 1989 was \$7.233m.

LOCAL ROADS

Cradle Mountain Tourist Road

Cethana Turnoff to Learys Corner

Reconstruction was completed. Expenditure for 1988-89 was \$327 000 and total cost to 30 June 1989 was \$4.582m.

Within National Park

A loop was designed for the tourist road to service the new tourist information centre being constructed for the Department of Lands, Parks and Wildlife. Close liaison was necessary with officers of that Department. Construction, including earthworks, culverts and sub-base, was completed. Total expenditure in 1988-89 was \$91 000.

Pegarah Secondary Road, King Island

Reconstruction and sealing of 4.83km were completed by King Island Council on behalf of the Department. Some guideposts were installed but no centrelining was painted.

Expenditure in 1988-89 was \$161 000 and the total cost to 30 June 1989 was \$417 000.

ROAD AND BRIDGE PROJECTS South East District

NATIONAL HIGHWAY

No road construction projects were undertaken.

Midland Highway

Bridgewater Bridge Strengthening

Design was undertaken of strengthening works for crossheads at Piers 9 and 12 to cater for increased live load, and also for construction loads during modification of the main steel girders. The crosshead strengthening involves the use of a pair of concrete encased steel plate girders, with prestressed bar connection to ensure integral action with the existing crosshead.

Strengthening works continued. Six of the approach spans were jacked up and reinforced with additional cover plates on the top and bottom flanges of three of the four plate girders. Materials for strengthening piers 9 and 11 were purchased, ready for fabrication.

Expenditure in 1988-89 was \$505 000 and the total cost to 30 June 1989 was \$981 000.

Brighton-Pontville Bypass

Federal Government approval for the Bypass was given early in 1988-89. To enable protection of the route, it was necessary to accurately define land acquisition requirements.

Some provision was made for acquisitions in cases where deferral would cause hardship, although no construction is expected for some years.

Bagdad Bypass

A report on the extensive planning investigations required was being prepared. Protection of a preferred route became a priority due to subdivision pressures.

NATIONAL ARTERIAL ROADS

Brooker Highway

Berriedale Road to Jimbirn Street

Apart from minor landscaping on the central median, duplication was completed. Works included widening the pavement for northbound traffic and overlaying with asphalt. Expenditure in 1988-89 was \$560 000.

Jimbirn Street to Claremont Link Road

Design was completed for duplication of the carriageway. Earthworks were completed as far as the Claremont Link Road Underpass, with pavement to sub-base level on the widened sections. Expenditure in 1988-89 was \$390 000.

Claremont Link Road Underpass

Site works for the abutment piling began in February. Both capping beams were constructed and erection of precast beams was expected to be completed in July 1989. Deck and kerbing construction was expected to be completed by September. Expenditure in 1988-89 was \$210 000.

Claremont Link Road to Euston Street

Design was completed for the Euston Street Underpass Stage 2 and the Roseneath Rivulet Culvert and School Subway Extensions to cater for the duplication of the highway at Claremont. The Underpass is a three span structure with pretensioned plank superstructure. It will carry the new second carriageway over Euston Street, and is similar in concept to the existing structure alongside.

Earthworks began for the duplication of the existing road. Backfill to the Abbotsfield Pedestrian Underpass was completed. Expenditure in 1988-89 was \$133 000.

Abbotsfield Pedestrian Subway

The 15m extension of the existing underpass to meet the requirements of the road duplication was completed at a cost of \$48 000.

Abbotsfield Road to Black Snake Lane, Granton

A preliminary design was completed for 3.8km of highway duplication between Abbotsfield Road and Granton.

Investigation continued into selecting suitable sites for the disposal of more than 70 000 cubic metres of excess material.

URBAN ARTERIAL ROADS

Hobart Southern Outlet Highway

Duplication, Olinda Grove to north of The Lea Turnoff—Stage I

Remedial works were completed to contain an instability problem in the major cutting south of Mt Nelson interchange.

Duplication, North of The Lea Turnoff to Shaw Road—Stage II

This section was completed and opened to traffic on 19 December, allowing a further 2.8km of road to be used. Constructed alongside this section was a weighbridge for use by Transport Tasmania.

Duplication, Shaw Road to Groningen Road—Stage III A

Heavy construction was proceeding and earthworks were about 70 per cent complete. Due to the relative levels of the new carriageway and the existing road, haulage of earth and rock was largely restricted to a one lane operation. It was anticipated that earthworks would be completed by August 1989 and the duplication completed in December.

Stage 2 of the Shaw Road underpass began in late May after the southbound traffic had been diverted onto the newly opened northbound carriageway. The abutments were 30 per cent complete and the pretensioned planks for the superstructure were cast at Lutana Casting Yard.

The 49.5m extension of Browns River Culvert, a twin cell cast insitu box culvert, was completed in May after minor delays due to creek flooding. Backfill to the structure was incorporated in the Stage 3 duplication earthworks.

Duplication, Groningen Road to Kingston Interchange—Stage III B

Final detailed design for the loop and off ramp from the Outlet Road to the Huon Highway began in June. Completion of plans was expected in September 1989.

Landscaping

Minor works were undertaken on Stage II duplication. After completion of earthworks on Stage III, hydro mulching and seeding will proceed. Landscaping design was not finalised for the balance of the project due to late changes to the total design requirements.

The total expenditure on all works from Olinda Grove to Kingston in 1988-89 was \$3.307m and total cost to 30 June 1989 was \$12.085m.

Bellerive Bypass

Final design continued for the 3.9km section from Mornington to Rokeby Main Road, concentrating on the Shoreline Drive Roundabout and the section from Shoreline Drive to Rokeby Main Road, beyond Merindah Street.

Design amendments were made to the highway profile, eliminating median walling, with consequent cost savings.

Detailed design of the Shoreline Roundabout was completed. Design and services plans also were completed from Shoreline to Rokeby Main Road. A stage design was completed to enable opening of one of the dual carriageways and design was progressing for a junction with Merindah Street. Landscape designs were partly completed.



Mornington Interchange

Landscaping works were completed following the paving of the ramps to the correction course of asphalt.

Until the Bellerive Bypass is opened, the final wearing course to the Hobart on and off ramps will be delayed, to allow traffic management plans to be finalised.

Expenditure in 1988-89 was \$220 000 and total expenditure to 30 June 1989 was \$1.706m.

Roadworks—Mornington Interchange to Shoreline Drive

Excavation of the work throughout the project was achieved by the use of large excavators with hydraulic rock breakers. Rock pinning was necessary throughout the Ninabah Street cut, as well as sections of the last rock cut on the approach to Rokeby Road.

Excavation will be undertaken for the Shoreline Roundabout where delays in the relocation of Telecom and HEC cables halted work. Pavement construction was completed on both carriageways to Shoreline Drive and on the westbound carriageway from Shoreline Drive to Rokeby Main Road.

Asphalt surfacing was completed to Ninabah Street, with primer seal extending to Shoreline Drive on both carriageways. A 500m section was primer sealed on the westbound carriageway.

To construct the 1m wide verge behind the central median kerb, the kerb and gutter machine was modified to extrude a flat strip. In this way, production rates of up to 150m per day were achieved.

Earthworks began beyond Rokeby Main Road. Expenditure for 1988-89 was \$3.651m.

Sirius Street Footbridge

This structure was opened to pedestrian traffic in May. The two 52 tonne deck beams were cast at Lutana and transported to the site. Total expenditure in 1988-89 was \$163 000 and total expenditure to 30 June 1989 was \$234 000.

Shoreline Footbridge

Design was completed for this structure, which will provide safe pedestrian access over the Bypass to and from the Shoreline Shopping Centre and nearby schools. The footbridge has two main spans over the highway in prestressed concrete, and a four span, reinforced concrete, staged approach ramp at one end. Work began in June.

Rokeby Main Road, Oceana Drive to Rokeby

Planning work to establish an appropriate corridor south from Oceana Drive was completed.

South Arm Secondary Road, Rokeby to Lauderdale

Design began for a dual carriageway from the Police Academy to Acton Road junction, a distance of 2.0km.

Brooker Avenue

The pavement on both carriageways was strengthened by an asphalt overlay from Derwent Park Road junction southwards for a distance of 1.05km. The central median kerb was renewed to ensure adequate kerb height. Topsoil was added to meet the new levels. Seeding and shrub planting expenditure in 1988-89 was \$357 000.

Brooker Highway

Derwent Entertainment Centre

New channelisation and junction works, including overhead lighting, were completed for the entrance to the centre. One aspect of construction was the effect of tidal movements on the water table whilst excavating for the drainage lines and service ducts. The junction was in operation in February. Expenditure for 1988-89 was \$547 000.

Tasman Highway/Davey Street Extension

The Department was sub-contractor to Hazell Bros Civil Contracting Pty Ltd for the superstructure on Davies Avenue Underpass. Works were completed by October.

Expenditure in 1988-89 was \$1.217m and total expenditure to 30 June 1989 was \$2.192m.

Channel Highway

Snug to O'Briens Hill

All design drawings were completed, except for some minor amendments. Accommodation works were completed on the majority of affected properties. Excess excavated material from the Hobart Southern Outlet Highway was used as fill for the new road alignment from Esplanade to the new Snug Creek Bridge. Expenditure was \$73 000.

Tasman Highway

Tasman Bridge to Rosny Hill Overpass

Design began on a proposal to provide a lane for Eastern Outlet bound traffic from Lindisfarne. Access requirements for the proposed Panorama Campus development received consideration.

Acton Road to Holyman Drive.

A corridor for a future highway to the airport was defined and adopted. Proclamation of the corridor was notified in the Gazette on 21 June 1989.

First Sorell Causeway to Penna Road Junction

Design of some 0.4km was undertaken to realign the Highway away from a slip which affected the Hobart bound lane. Design was extended to include the Penna Road junction.

Temporary remedial works undertaken in the immediate area of the slip will be incorporated in the final design.

Grass Tree Hill Secondary Road

Bus Layby at Old Horse Troughs

Preliminary plans were drawn up for a bus layby to be sited adjacent to some historic sandstone horse troughs. Careful investigatory excavations were carried out to determine optimum design requirements.

RURAL ARTERIAL ROADS

Arthur Highway

Hawks Hill Deviation

Due to a massive landslide behind Lufra Hotel, no major works were undertaken. Extensive geotechnical investigation was completed to assist in assessment of potential remedial works. Recommended solutions involved the use of Terramesh gabion walls.

Expenditure in 1988-89 was \$291 000 and the total cost to 30 June 1989 was \$1.801m.

Eaglehawk Neck to Masons Point

This contract for 5.5km of reconstruction was completed in December. Features of the project were material variability and inclement weather. Expenditure in 1988-89 was \$2.078m and the total cost to 30 June 1989 was \$3.394m.

Masons Point to Taranna

Construction of the 4km section was undertaken by Hazell Bros Civil Contracting Pty Ltd. Practical completion was in December. Expenditure in 1988-89 was \$2.227m and total cost to 30 June 1989 was \$2.503m.

Huon Highway

Grove to Huonville

Reconstruction was completed on the 2.6km section from Lollara Main Road to the Huonville town boundary. Due to the narrow road corridor, construction was hampered by the continual need to provide temporary pavement to link the construction earthworks in the undulating terrain. Expenditure in 1988-89 was \$1.726m and the total cost to 30 June 1989 was \$3.863m.

Through Franklin

Preliminary reconstruction work was undertaken on 1.8km of road confined between old houses.

Lake Highway

Steppes to Poatina Main Road

Rehabilitation works continued from Ripple Creek southwards for 3km. Widening and overlaying the existing road, with admixed material from two outlying quarries, was completed.

Expenditure for 1988-89 was \$479 000 and the total cost to 30 June 1989 was \$1.033m.

Lyell Highway

Fenton Main Road to Gretna

This 1.1km section was completed on October for an expenditure in 1988-89 of \$329 000. Total cost to 30 June 1989 was \$989 000.

Through Gretna

Service alterations and poor quality materials under the existing road caused some minor delays. As an innovation, precast side entry drainage pits were used in the kerb and gutter area of the town. Work on this 0.6km section was completed in January.

Expenditure in 1988-89 was \$518 000 and the total cost to 30 June 1989 was \$557 000.

Norton Mandeville to Ouse

Rehabilitation works continued initially with two crews, one working on widening, repairs and drainage and the other on pavement overlays. A total distance of 6km was sealed.

Expenditure in 1988-89 was \$1.107m and the total cost to 30 June 1989 was \$1.703m.

Ouse River Footbridge

Design was completed for this five span timber structure located just upstream of the existing highway bridge. Due to redesign of the footings, a late start was made in May. All works were virtually complete. Expenditure in 1988-89 was \$66 000.

Tasman Highway

Thumbs Bridge to Black Bridge

Restoration and widening to provide an overtaking lane on this 1.0km section began in February. Earthworks were completed and pavement material was placed on the full length. Due to inclement weather sealing was delayed. Expenditure in 1988-89 was \$356 000.

Montgomerys Road Corner to Break-Me-Neck Hill

Work began in June after delays in design acceptance. Clearing and minor earthworks began on an 800m section south of Break-Me-Neck Hill.

Expenditure incurred in 1988-89 was \$47 000.

Colebrook Main Road

Richmond Bypass

Proclamation of this route under Sections 9A and 52A of the Roads and Jetties Act was completed.

Fenton Main Road

Westerway to National Park

Design was completed for Tyenna River Bridge (No. 1571), to replace a temporary Bailey Bridge. It is the second of two Tyenna River crossings in close proximity, on a minor realignment of this road. It has three spans, with post-tensioned I beam superstructure.

Construction of Tyenna River Bridge No. 1581 began in February with site works on the river piers. Both piers and abutments were completed with the precast beams installed on two spans.

Earthworks associated with the road alignment for the bridge began in March on a 200m deviation.

Expenditure in 1988-89 was \$341 000. Total expenditure on road and bridgeworks to 30 June 1989 was \$2.801m.

Discussions were held with Australian National Railways in relation to upgrading of the rail crossings. Due to potential problems in a land slip area above the railway line, a design alteration was requested to minimise earthworks in this area.

LOCAL ROADS

Tea Tree Secondary Road

Restoration works were completed on a 1.5km section west of the Back Tea Tree Road Junction. Widening, pavement strengthening and minor earthworks were undertaken for an expenditure of \$267 000.

Nugent Main Road

Minor curve improvements and drainage upgrading were undertaken on a 2km section 15km from the Arthur Highway junction. Expenditure in 1988-89 was \$53 000.

UNCLASSIFIED ARTERIAL ROAD

Plenty River Bridge, Glenora Road

Design was completed for a three span bridge on Glenora Road. The pretensioned plank superstructure will replace an existing substandard timber structure. This bridge has been chosen as a trial project for computer aided drafting. Construction is not programmed at this stage.

UNCLASSIFIED LOCAL ROADS

Lune River Bridge, Lune River Subsidised Road

Completion of the 92m deck, kerbs and handrail was achieved by January for an expenditure of \$198 000 and the total cost to 30 June 1989 was \$989 000.

The road approaches, which began in late November, were completed in February, giving a gravel surface on the approaches leading to a sealed run-on strip to the structure for 40m at either end. Expenditure in 1988-89 was \$190 000 and the total cost of road and bridge works to 30 June 1989 was \$1.179m.

Rotherwood Bridge over Jordan River on Rotherwood Road

Work began in September on the abutments to the replacement bridge. Due to difficulties experienced with the Triabunna slipway, the crew were relocated for a few months before returning to work on the mid river pier. Problems encountered in construction and grouting of the caissons were overcome and completion of the structure was anticipated by early July 1989.

Expenditure in 1988-89 was \$141 000.

ANNEXURE A

**STATE HIGHWAYS TRUST FUND
STATEMENT OF RECEIPTS AND PAYMENTS FOR THE
YEAR ENDED 30 JUNE 1989**

1987-88			1988-89
\$		\$	\$
(4 786 681)	Balance brought forward, 1 July		(8 412 492)
	RECEIPTS		
	Commonwealth:—		
28 493 319	Australian Centennial Roads Development Act	21 373 233	
18 250 317	Australian Land Transport Act	15 300 429	
21 276	Australian Bicentennial Road Development Trust Fund Act	11 140 278	
489 892	Interstate Road Transport Act	54 181	
2 730	Gordon River Power Development Compensation	1 459 367	
	Community Employment Programme .....	....	49 327 488
	State:—		
19 112 788	Motor Taxation	19 436 425	
18 640 123	Petroleum Products Business Franchise Licences	19 101 828	
233 207	Public Vehicle Fees	184 460	
11 170 000	Consolidated Fund—Works and Services	23 320 000	
1 364 763	Consolidated Fund—Recurrent Expenditure	1 170 018	63 212 731
	Other:—		
167 142	Profit on Contracts	1 228 769	
745 498	Woodchip Tolls	753 145	
680 265	Property Sales	338 288	
259 513	Miscellaneous Receipts and Refunds	613 785	2 933 987
94 844 152			107 061 714

1987-88		Commonwealth Funds	State Funds	1988-89
\$		\$	\$	\$
	PAYMENTS			
	Roads and Bridgeworks:—			
13 459 124	National Roads—Construction	14 518 337	527 288	15 045 625
3 729 378	National Roads—Maintenance	3 029 019	39 024	3 068 043
48 536 416	Arterial Roads—Construction	17 881 120	40 116 555	57 997 675
16 880 384	Arterial Roads—Maintenance	869 181	16 200 697	17 069 878
9 030 694	Local Roads—Construction	8 759 647	2 902 258	11 661 905
8 766 457	Local Roads—Maintenance	5 154 883	2 700 323	7 855 206
100 402 453		50 212 187	62 486 145	112 698 332
	ASSOCIATED WORKS:—			
929 359	Water Transport Facilities			1 364 779
489 892	Gordon River Power Compensation .....			....
200 000	Launceston Flood Protection			200 000
1 232 210	Miscellaneous Consolidated Fund Expenditure			936 810
2 730	Community Employment Programme .....			....
103 256 644				115 199 921
(8 412 492)	Balance as at 30 June			(8 138 207)
94 844 152				107 061 714

STATE HIGHWAYS TRUST FUND

NOTES TO AND FORMING PART OF THE FINANCIAL STATEMENT

1. STATEMENT OF ACCOUNTING METHODS

(a) Basis of Preparation of Accounts

The accounts have been prepared predominately on a receipts and payments basis. This method is maintained to ensure that Departmental records are compatible with State budget appropriations and the funding processes of the Commonwealth Government. Accordingly, the figures included in the accounts do not include amounts owed to or by the Department as at 30 June 1989.

(b) Change in Accounting Policy.

Previously the Department offset the Contribution towards Administrative Costs received from the Consolidated Fund—Works and Services, and the Contribution to Salaries from the Consolidated Fund—Recurrent Services against salaries expenditure. Beginning with the 1988-89 financial year, the Department has recognised these amounts as receipts into the State Highways Trust Fund.

Expenditure from Gordon Below Franklin Compensation monies has been included under Roads and Bridgeworks and Water Transport Facilities where appropriate.

(c) Expenditure.

The Department charges costs either directly or through a reallocation process to road and bridgeworks with which the costs can be related. With the exception of Construction and Maintenance costs incurred on National Highways under the Australian Land Transport Act and the Australian Centennial Roads Development Act, all Administrative costs which cannot be directly related to programs have been reallocated over the State funded Construction and Maintenance activities of the Department.

The Australian Land Transport Act and the Australian Centennial Roads Development Act allow a 4 per cent on-charge to be raised on the Construction and Maintenance costs incurred on National Highways. For the 1988-89 financial year, these charges amounted to \$85 743 and \$449 874 under each Act respectively.

2. Compliance

During the 1988-89 financial year, the Department operated within the requirements of all relevant State and Commonwealth Statutes. The main Acts under which the Department operated were the Audit Act 1918, the Public Account Act 1986, the Australian Bicentennial Road Development Trust Fund Act 1982, the Australian Land Transport (Financial Assistance) Act 1985, the Australian Centennial Roads Development Act 1988 and the Roads and Jetties Act 1935.

3. Commonwealth Receipts

The Commonwealth provided financial assistance made up as follows:

	ALTP ACT	ABRD ACT	ACRD ACT	IRT ACT	GBF
	\$	\$	\$	\$	\$
National Roads	6 108 615	3 145 217	6 860 108	....	....
National Arterials . . . . .	....	....	6 400 000	....	....
Rural Arterials	2 195 875	4 176 715	....	54 181	1 392 095
State Arterials . . . . .	....	....	1 467 262	....	....
Urban Arterials	1 910 709	2 149 439	....	....	....
Local Roads	5 085 230	1 668 907	6 645 863	....	....
Water Transport Facilities . . . . .	....	....	....	....	67 272
	15 300 429	11 140 278	21 373 233	54 181	1 459 367

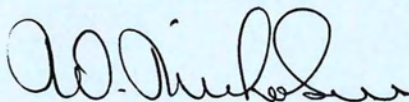
4. Commonwealth Expenditure

Commonwealth expenditure on road and bridgeworks was financed from the following sources:

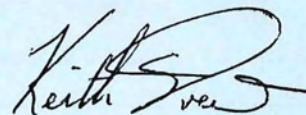
	ALTP ACT	ABRD ACT	ACRD ACT	IRT ACT	GBF
	\$	\$	\$	\$	\$
National Roads—Construction	2 073 399	3 621 314	8 823 624	....	....
National Roads—Maintenance	155 913	....	2 873 106	....	....
National Arterials—Construction . . . . .	....	....	4 296 853	....	....
Rural Arterials—Construction	1 618 747	4 711 503	....	....	1 392 095
Rural Arterials—Maintenance	440 000	....	....	54 181	....
State Arterials—Construction . . . . .	....	....	1 467 262	....	....
Urban Arterials—Construction	1 979 280	2 415 380	....	....	....
Urban Arterials—Maintenance	375 000	....	....	....	....
Local Roads—Construction	2 574 298	2 042 688	4 142 661	....	....
Local Roads—Maintenance	2 653 713	....	2 501 170	....	....
	11 870 350	12 790 885	24 104 676	54 181	1 392 095

The accompanying financial statement has been prepared pursuant to section 5 (3) of the Roads and Jetties Act 1935.

In our opinion, this statement presents a true and fair view of the financial transactions of the State Highways Trust Fund for the financial year ended 30 June 1989.



W I NICHOLSON
Chief Accountant,
Roads Division



K W DREW
Secretary,
Department of Roads and Transport

ANNEXURE B

ROAD CONSTRUCTION PLANT SUSPENSE ACCOUNT INCOME AND EXPENDITURE STATEMENT FOR YEAR ENDED 30 JUNE 1989

1987-88 \$ (15 months to 30 June 1988)		\$	\$	1988-89 \$
	INCOME—			
17 485 058	Plant Hire		12 514 649	
10 318 099	Workshop Charges		8 986 319	
153 164	Miscellaneous Income		167 140	
213 837	Net Profit on Sale of Surplus Plant		135 061	
<u>28 170 158</u>	TOTAL INCOME			21 803 169
	EXPENDITURE—			
690 047	Plant Fuel	472 727		
5 350 122	Plant Operations	1 212 494		
278 377	Plant Servicing	138 245		
3 495 948	Plant Maintenance	3 025 364		
459 393	Plant Major Overhauls	180 320		
99 220	Plant Components	71 043		
341 866	Plant Tyres and Tubes	367 972		
244 315	Plant Supervision	228 457		
213 617	Plant Miscellaneous Maintenance	<u>170 441</u>	5 867 063	
9 675 089	Workshop Operations		8 842 764	
2 838 000	Contribution to Salaries and Admin Costs		1 652 000	
420 175	Depot Maintenance		316 153	
235 277	Transport Operational Costs		289 664	
18 785	Data Processing		18 425	
40 873	Motor Vehicle Accidents		40 812	
5 089	Plant Accidents		6 817	
1 686 244	Depreciation on Plant and Equipment		1 876 621	
1 686 244	Replacement Cost Depreciation		1 876 621	
27 430	Depreciation on Land and Buildings		<u>22 568</u>	
<u>27 806 111</u>	TOTAL EXPENDITURE			20 809 508
364 047	EXCESS OF INCOME OVER EXPENDITURE			<u>933 661</u>

ROAD CONSTRUCTION PLANT SUSPENSE ACCOUNT BALANCE SHEET AS AT 30 JUNE 1989

1988 \$		1989 \$
	NATURE AND SOURCE OF FUNDS USED—	
	Accumulation Account—	
6 155 905	Balance Brought Forward 1 July 1988	6 519 952
364 047	Surplus Transferred from Income and Expenditure Statement	993 661
<u>6 519 952</u>	Balance Carried Forward 30 June 1989	<u>7 531 613</u>
	Funds provided by State Treasurer—	
194 607	Valuation of Stock Plant and Equipment, 30 June 1945	194 607
3 140 731	Loan Funds	3 140 731
	Reserves—	
1 686 244	Plant Replacement	3 562 865
	Other—	
6 769	Commonwealth Grants	6 769
611 897	State Highways Trust Fund	611 897
<u>12 160 200</u>	TOTAL FUNDS	<u>15 030 482</u>

1988 \$		\$	1989 \$
THESE FUNDS ARE REPRESENTED BY—			
Current Assets:—			
1 340 955	Cash at Treasury		3 678 175
179 344	Work in Progress		159 945
1 033 080	Accrued Revenue		755 777
703	Apprentice Tool Kits		9 465
<u>2 554 082</u>			<u>4 603 362</u>
Current Liabilities:—			
769 748	Accrued Expenses		617 668
<u>769 748</u>			<u>617 668</u>
1 784 334	Working Capital	3 985 694	
Fixed Assets:—			
1 769 362	Land and Buildings	1 840 885	
433 731	Less Provision for Depreciation	<u>456 299</u>	
			1 384 586
22 021 892	Plant and Equipment	23 957 705	
12 981 657	Less Provision for Depreciation	<u>14 297 503</u>	
			9 660 202
<u>12 160 200</u>	TOTAL FUNDS		<u>15 030 482</u>

**ROAD CONSTRUCTION PLANT SUSPENSE ACCOUNT
STATEMENT OF SOURCES AND APPLICATIONS OF FUNDS
FOR YEAR ENDED 30 JUNE 1989**

1987-88 \$ (15 months to 30 June 88)			1988-89 \$
SOURCES OF FUNDS—			
Funds from Operations (1)—			
27 956 321	Inflows of Funds from Operations	21 668 108	
24 406 193	Less Outflows of Funds from Operations	<u>17 033 698</u>	
<u>3 550 128</u>			4 634 410
Reduction in Assets—			
Current Assets—			
428 612	Work in Progress	19 399	
5 414	Accrued Revenue	277 303	
697 377	Apprentice Tool Kits	<u>.....</u>	296 702
<u>4 681 531</u>	Proceeds from Sale of Fixed Assets		<u>268 813</u>
			<u>5 199 925</u>
APPLICATIONS OF FUNDS—			
Increase in Assets—			
Current Assets—			
958 160	Cash at Treasury	2 337 220	
41 085	Apprentice Tool Kits	8 726	
	Work in Progress	<u>.....</u>	2 345 982
Fixed Assets—			
78 217	Land and Buildings	71 523	
3 567 399	Plant and Equipment	<u>2 630 340</u>	2 701 863
Decrease in Liabilities—			
Current Liabilities—			
36 670	Accrued expenses		152 080
<u>4 681 531</u>			<u>5 199 925</u>

ROAD CONSTRUCTION PLANT SUSPENSE ACCOUNT

NOTES TO AND FORMING PART OF THE ACCOUNTS

1. RECONCILIATION OF FUNDS FROM OPERATIONS WITH OPERATING EXPENSES:

1987-88		1988-89
\$		\$
3 550 128	Funds from Operations	4 634 410
213 837	Add/(Less)—Profit on Sale of Assets	135 061
(1 713 674)	Historical Cost Depreciation	(1 899 189)
(1 686 244)	Plant Replacement Depreciation	(1 876 621)
364 047	Operating excess	993 661

2. PRINCIPAL ACCOUNTING POLICIES

(a) Basis of Preparation of Accounts

The accounts have been prepared in accordance with the historic cost convention with a modification which provides for a plant replacement reserve (see below). The accrual basis has been fully employed.

(b) Fixed Assets

These are recorded at cost with the exception of certain items of workshop equipment. The latter are revalued periodically, the last of which was undertaken in 1979-80 and reflected in that year's accounts.

(c) Depreciation

This is charged on all fixed assets, the method used being:

land, buildings, trucks, trailers: reducing balance basis.

heavy equipment: combination reducing balance and usage basis.

minor plant: some items on a straight line basis and others on a reducing balance basis.

workshop equipment: straight line basis.

light vehicles: usage basis.

(d) Comparative figures.

Comparative figures are not presented on a basis consistent with the current year as:

- i) the 1987-88 reporting period consisted of 15 months rather than the usual one year period; and
- ii) during 1988-89 the method of plant hire altered to that of hire without a plant operator. This resulted in a lowering of both plant operations expenses and plant hire income.

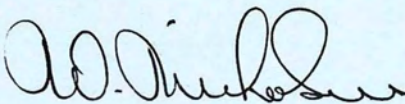
3. CONTRIBUTION TO SALARIES AND ADMINISTRATIVE COSTS

The amount paid to the State Highways Trust Fund to cover those salaried public servants who are directly involved in this function.

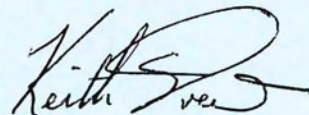
4. PLANT REPLACEMENT RESERVE

A survey to establish what needs to be set in future periods for the increasing cost of plant replacement is nearing completion. In the meanwhile, for 1988-89 the Plant Replacement Reserve has been credited with an amount equal to historic cost depreciation on plant and equipment for the period. The corresponding charge in the Income and Expenditure Statement is termed Replacement Cost Depreciation.

In our opinion, the accompanying financial statement present a true and fair view of the financial transactions of the Road Construction Plant Suspense Account for the financial year ended 30 June 1989 and the financial position as at 30 June 1989.



W I NICHOLSON
Chief Accountant,
Roads Division



K W DREW
Secretary,
Department of Roads and Transport

ANNEXURE C

CONSOLIDATED FUND WORKS AND SERVICES EXPENDITURE 1988-89

1987-88		1988-89
\$		\$
	ROADS AND BRIDGES—	
.....	Bellerive By-pass	1 434 218
.....	Derwent Entertainment Centre Access	547 107
1 928 075	Falmouth to Chain of Lagoons Link Road	2 118 301
105 561	Flagstaff Gully Link Road .....	.....
.....	Glenorchy City Centre Bypass	138 514
3 082 401	Guildford to Hampshire Link Road	5 318 208
922 247	Hobart Southern Outlet	3 306 760
.....	Huon Highway	1 626 246
.....	King River Bridge	180 000
.....	Lake Highway	770,295
10 252	Masters Games Signing .....	.....
425	Proposed extension at Scottsdale	13 520
2 108 791	Que River to Learys Corner Link Road	3 513 098
2 015 443	Smithton to Zeehan Corridor	1 486 226
650 000	Refund to Consolidated Fund—Recurrent Expenditure for Administration	1 370 000
<u>10 823 195</u>	TOTAL (Roads and Bridges)	<u>21 822 493</u>
	OTHER WORKS	
200 000	Launceston Flood Protection Scheme	200 000
489 420	Jetties and Facilities for Fishermen	1 033 198
307 385	Upgrading of Fishing Ports	264 309
996 805	TOTAL (other Works)	1 497 507
<u>11 820 000</u>	TOTAL (ALL WORKS)	<u>23 320 000</u>

ANNEXURE D

FINANCIAL ASSISTANCE TO LOCAL GOVERNMENT AUTHORITIES 1988-89

1987-88		1988-89
\$		\$
	Direct Grants—	
199 548	Arterial Roads—Construction	232 501
5 970 873	Local Roads—Construction	6 645 114
3 517 923	Local Roads—Maintenance	4 450 513
9 688 344		11 328 128
	Works on Council Roads Financed and Carried out by DMR—	
2 804 767	Repair and Renewal of Bridges	2 658 817
524 881	Roadworks	138 514
13 017 992	TOTAL	14 125 459

ANNEXURE E

BITUMINOUS SURFACING COMPLETED (km) 1988-89

Road	Hot Bitumen Sprayed			Seal	
	Prime and Seal	Primer Seal	Flush Reseal	Asphalt	Total
<i>South-East District</i>					
Arthur Highway	2.20	3.10	....	....	5.30
Brooker Highway		0.13	....	4.20	4.33
Channel Highway			1.82	....	1.82
East Derwent Highway			1.85	....	1.85
Hobart Southern Outlet		0.38	2.00	....	2.38
Huon Highway			12.72	....	12.72
Lake Highway	3.00	....	....	....	3.00
Lyell Highway		7.73	3.16	....	10.89
Tasman Highway		0.91	11.53	1.10	13.54
Colebrook Main Road			2.74	....	2.74
Fenton Main Road			1.93	....	1.93
Ellendale Secondary Road			10.21	....	10.21
South Arm Secondary Road			6.78	....	6.78
Tea Tree Secondary Road			1.72	....	1.72
Lake Tourist Road			0.92	....	0.92
<i>North-West District</i>					
Bass Highway			17.45	0.50	17.95
Lake Highway	1.00	....	....	....	1.00
Lyell Highway		1.50	1.70	....	3.20
Murchison Highway			9.40	....	9.40
Zeehan Highway			1.00	....	1.00
Calder Main Road			3.00	0	3.00
Castra Main Road			10.20	....	10.20
Forth Main Road			0.35	....	0.35
Kindred Main Road			4.30	....	4.30
Montagu Main Road			3.20	....	3.20
Railton Main Road			21.00	....	21.00
Stony Rise Main Road				0.70	0.70
Waratah Main Road	9.00	....	....	....	9.00
Cradle Mountain Tourist Road	4.24	....	....	....	4.24
Corinna Development Road			1.30	....	1.30
<i>North-East District</i>					
East Tamar Highway		1.74	2.50	4.72	8.96
Tasman Highway		1.30	33.03	4.50	38.83
West Tamar Highway			2.23	3.35	5.58
Bridport Main Road		1.94	....	....	1.94
Lake Leake Main Road			7.46	....	7.46
Lilydale Main Road		3.30	....	....	3.30
Poatina Main Road			5.00	2.50	7.50
Coles Bay Tourist Road		3.00	....	....	3.00
Notley Gorge Tourist Road				0.15	0.15
TOTAL	19.44	25.03	180.50	21.72	246.69

In addition to the above the following works were also carried out by the Department:—

- Bellerive Bypass 4.80 km Primerseal
- Cradle Mountain Link Road 20.50 km Primerseal
- Guildford-Hampshire 12.40 km Prime and Seal and Reseal
- Lune River Subsidised Road 0.21 km Primerseal.
- Anthony Road (for HEC) 3.64 km Prime and Double Seal.



DEPARTMENT OF MAIN ROADS

TASMANIA

CLASSIFIED ROAD SYSTEM





FRONT COVER
Deloraine Bypass

INSIDE BACK COVER
Brooker Highway Duplication

BACK COVER
Bellerive Bypass



